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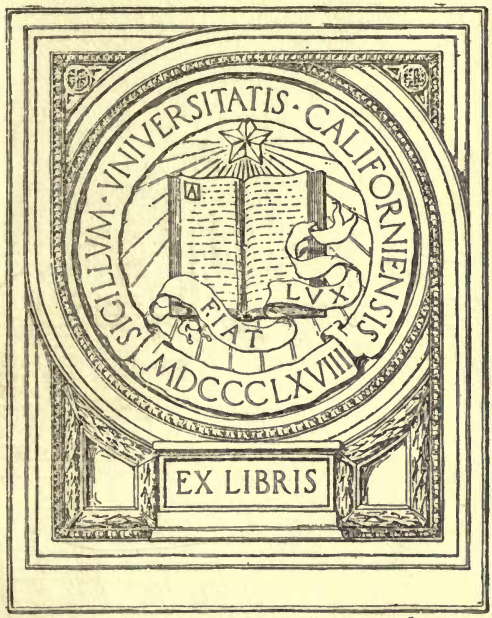

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VIEW OF TAUPO FROM TE RAPA WITH TAUHARA MOUNTAIN AT A DISTANCE

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TRAVELS

IN

NEW ZEALAND;

WITH CONTRIBUTIONS TO THE

GEOGRAPHY, GEOLOGY, BOTANY, AND NATURAL HISTORY OF THAT COUNTRY.

By ERNEST DIEFFENBACH, M.D.,

Late Naturalist to the New Zealand Company.

IN TWO VOLUMES.—VOL. I.

S. WILLIAMS.

Cascade of Boiling Water at Rotu Mahana.

LONDON:
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PREFACE.

THE following volumes contain an account of several journeys into various parts of New Zealand during the years 1839, 1840, and 1841, a part of which time was occupied in visiting the Chatham Islands and New South Wales.

My researches as Naturalist to the New Zealand Company might have been far more complete, had it been in my power to make an entire survey of New Zealand, but circumstances rendered this impossible; and it appears evident, from the principle which has guided the Government and the public, that we shall be indebted rather to an extension of colonization, than to a previous examination, for a more intimate knowledge of the country. I have, therefore, no other pretensions in bringing these volumes before the public, than that they contain unvarnished descriptions of the places I visited.

I must, however, observe that I have been over much untrodden ground. I was the first to visit or describe Mount Egmont, many places in the northern parts of the island, and some of the picturesque and interesting lakes and thermal springs in the interior. The excellent map which Mr. John Arrowsmith has compiled with the aid of my notes and sketches, will amply illustrate the routes I have taken.

I have entered, on several occasions, upon ques-

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tions intimately connected with the capabilities of the country as a home for Europeans. In a time pregnant with the universal desire to search for employment, and to open a new field for exertion, foreign and unoccupied countries, previous to colonization, should be explored with a view of making ourselves acquainted with their soil and natural productions. Natural history and the affiliated sciences should, in that case, be merely the helpmates to noble enterprise; and even more than that—they should guide and lead it.

I can but hope that those who delight in contemplating the arrangements of Nature in distributing her creatures over the different countries will find something satisfactory in these volumes;—this is the "Fauna of New Zealand."

I am indebted for this valuable addition to my work to J. E. Gray, Esq., of the British Museum, who, with the assistance of the celebrated Arctic traveller, Dr. J. Richardson, of Messrs. G. R. Gray, Doubleday, and White, has described the animals at present at hand, and, with the descriptions of former naturalists and travellers, has made the enumeration of the animals which are found in New Zealand as complete as possible. I express here my high gratitude to J. E. Gray, Esq., as well as to the gentlemen I have mentioned, for a labour which was as arduous, as no doubt it will be useful to future travellers.

ERNEST DIEFFENBACH.

London, November, 1842.

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NEW ZEALAND.

CHAPTER I.

GENERAL REMARKS.

It is natural that in the selection of a new colony, in a distant region, a preference should be given to a country the climate and other circumstances of which are in some degree analogous to those of the native land of the colonists, in order that the physical and intellectual energies of their posterity may not retrograde, but be developed and matured in a congenial soil, and thus may conduce in the greatest degree to the general prosperity and happiness. It is natural, also, that the attention and views of those to whom the land of their birth affords little prospect of advancement should be directed towards that country which promises from the resources within itself a steady progress to ultimate prosperity without being a burthen to the mother country for a longer period than that which may be termed its infancy, whilst at the same time it insures to the latter that reciprocal benefit which she has a right to expect.

It is with man as with plants and animals; each

kind has its natural boundaries, within which it can live, and thrive, and attain its fullest vigour and beauty. If we intend to propagate them in climates differing from their own, we may do so by creating an artificial state of things, resembling that of the place to which they are indigenous. But this is little practicable in the transplantation of man. Many colonies have, indeed, been founded in unfavourable positions for the purpose of obtaining the peculiar produce of the country, as the sugar, coffee, cacao, and indigo of the West Indies, the gum of Senegal, the palm-oil of the Cape Coast. But in such cases the colony was not what would seem to be the true meaning of the word, an offset from the parent state, planted and reared to maturity in a foreign soil; but merely a factory, where the ease of acquiring riches by supplying a certain commodity to the home market has rendered men reckless of the dangers of climate, and regardless of the loss of life attending the speculation. In such colonies the European population soon became decrepit, and degenerated from the strength and vigour of the stock from which they descended. In some instances they were supported by a regular system of oppression and extortion towards the original inhabitants, who had reason to curse the hour in which civilised Europeans first came amongst them; but, more frequently, they could only exist by what might be called the colonial hothouse system, in other words, by the slavery and

misery of thousands of their fellow-creatures. Other colonies arrived at prosperity by the labour of *convicts*, which Government bestowed as a liberal gift upon the settlers. In these colonies a middle class or peasantry was wanting, which forms the true tie of our social relations and is the best pledge of their durability. An artificial appearance of wealth was created, and an illusory value of landed property which could not last as soon as the importation of convicts ceased, because the prosperity was not borne out by the capability of the country. A few Europeans, being the masters of countless numbers of a different race, either originally introduced as slaves or who have been conquered, do not form an European colony.

How different from all this is the case of New Zealand, where the climate is not only similar to that of England, but even milder than that of her most southern counties, whilst at the same time it is healthy and invigorating! The children of Europeans, born in this country, show no deterioration from the beauty of the original stock, as they do in New South Wales and Van Diemen's Land. A great part of the country possesses a soil which yields all those articles of food which are necessary for the support of Europeans, especially grain, potatoes, fruit, and every variety of garden vegetables; it possesses materials for ship-building and domestic architecture in its timber, marble, and freestone; the coal which has been found will probably prove

sufficient in quantity for steam-engines and manufactories; its coasts are studded with harbours and inlets of the sea; it is intersected by rivers and rivulets; its position between two large continents is extremely favourable; in short, it unites in itself everything requisite for the support of a large population in addition to the native inhabitants. No other country possesses such facilities for the establishment of a middle class, and especially of a prosperous small peasantry, insuring greatness to the colony in times to come.

It is, I conceive, no small praise to a country that in it labour and industry can procure independence, and even affluence; that in it no droughts destroy the fruits of the colonist's toil, no epidemic or pestilence endangers his family; that with a little exertion he may render himself independent of foreign supply for his food; and that when he looks around him he can almost fancy himself in England instead of at the Antipodes, were it not that in his adopted country an eternal verdure covers the groves and forests, and gives the land an aspect of unequalled freshness and fertility. More, however, than all these advantages were expected by the colonists who in the last two years have flocked by thousands to New Zealand. They found to their surprise and disappointment almost entirely a mountainous country, the mountains being in many cases steep and intersected by ravines instead of valleys; whilst the cultivable land, instead of being conti-

nuous, was much dispersed and subdivided: they found also that in many places a large proportion of the land was entirely useless; that where they looked for extensive pasture-grounds, the food for cattle and sheep was very scanty; that instead of natural grasses, high fern, shrubs, or a thick forest covered the ground; and that in the latter case the thick and interwoven roots formed a very formidable barrier to successful agriculture in the easy and quickly remunerating manner they expected.

Most of these emigrants did not intend to make the new colony their *second home*, but expected, with the help of the labour which was provided for them in return for their purchases of land, or by the cheap, and, as they hoped, almost gratuitous labour of the natives, to produce, in the shortest possible time, those articles of produce which the country was said to offer available for export, or to see their flocks increasing without exertion on their own part; and, having thus made a rapid fortune, to return to their native country. Many came for the purpose of speculating in land, especially in town allotments, which has become such a favourite system of deception and ruin in the Australian colonies, and will retard their progress for many years to come, notwithstanding the halo of wealth produced by it, the distant reflection and splendour of which are continuing to attract thousands of emigrants from the shores of the United Kingdom.

As articles of export in New Zealand, from which such quick proceeds were expected, timber, flax, and

oil were particularly mentioned; but, since the colony has been established, these articles have scarcely furnished any exports, and they cannot be expected to be sources of any considerable profit for some time to come. As regards timber, it will be admitted that only large and long spars, for the use of the navy, will cover the expense of bringing them to the water-side, and shipping them to a distance of 14,000 miles. After having visited nearly all the timber districts in the northern island, I became convinced that such large and sound spars are scarce, and that, in New Zealand, the kind of tree fit for exporting never forms a continuous forest as in other countries; and as for shipping other kinds of wood, this is quite out of the question, as the price of sawn timber in New Zealand itself was, at the time of my departure, 32*s*. per 100 feet; and the importation of plank from Europe has met with success. It is a fact very notorious in New Zealand, that the shipment of spars, from the enormous expense of bringing them to the water-side, has never been profitable to any one. There is certainly a large quantity of timber of all descriptions in the island, which will become of the greatest value in the country itself, when its resources are a little more developed. Upon the labour of the natives the colonist can at present depend but little; and although he will find them in other respects sufficiently useful, he has to pay them at the same high rate as his European workmen, without being sure that they will always work at his command.

The export of flax, prepared by the natives, has dwindled almost to nothing in the last few years, as, from their increased intercourse with Europeans, they have been enabled, by a slight degree of agricultural labour, to obtain all the commodities which they require; and they are therefore averse to the dressing of the flax, which has, moreover, always been the work of the women, and was only resorted to by the men in times of war, for the purpose of procuring muskets, powder, and shot. It is quite true that this valuable plant covers immense districts in New Zealand, and could be procured in any quantity, if a cheap method of preparing it were known; but till then it cannot be regarded as likely to promote the commercial interests of the colony.

The results of the whale-fishery on the coasts of New Zealand are of very small amount in the British market, owing to the indiscriminate slaughter of the fish during the last fifteen years, without due regard to the preservation of the dams and their young. The shore-whalers, in hunting the animal in the season when it visits the shallow waters of the coast to bring forth the young, and suckle it in security, have felled the tree to obtain the fruit, and have thus taken the most certain means of destroying an otherwise profitable and important trade.

As for the belief that the ships of the several nations engaged in this trade must resort to New Zealand for refitting, as being in the centre of the

southern whale-fishery, it is quite erroneous; the fact being that, as soon as New Zealand became a British colony, the whalers deserted it, and went to Otaheite, or some other of the Polynesian Islands, where they could be supplied with wood and provisions at a much cheaper rate.

I would wish to impress these facts upon the reader, for the purpose of showing that there is at present, in New Zealand, no article of export which can be depended upon, to procure that balance of trade which is necessary for the success of all commercial communities. Exports must be *created* in the island by means of the agriculturist; and it is the highest praise of the country that they *can be created*, and that they do not differ from the same articles produced at home. England, in former times, had scarcely more exports than New Zealand has now; but the internal resources and geographical position which secured to Great Britain its unequalled prosperity, are, although much inferior, yet similar, in New Zealand, and may give her, in the course of time, as high a position.

It will readily be concluded from these observations that, in the first settlements of New Zealand, by far too much importance has been attached to *commerce* and to those natural products just mentioned, and that many incorrect and exaggerated statements on the present capabilities of the colony have been brought forward. In a country like New Zealand, favoured in so many respects by nature,

but which cannot be regarded as an entrepôt or point of transit, the first question as to its future prosperity and success should be:—Can the settlement produce all that it may require for internal consumption, and will provisions be cheap as compared with the price of labour? This should, undoubtedly, be the case in New Zealand, and, consequently, the supply of provisions to ships and to the Australian colonies will be the principal source of export from the colony.

To afford facilities to the first settlers of creating agricultural produce—to extend the utmost liberality to those who have purchased land and intend to become working colonists—to permit them to have an extensive choice, that they may select the good land in preference to the bad—to give them legal titles accordingly, and not to allow them to consume their capital after their arrival in the colony by a delay of the surveys—are the only means of securing prosperity to New Zealand. Under such circumstances the system of land sales in England at a fixed price, and the application of the purchase money to send out agricultural labourers and mechanics, in a just ratio to the demand of labour, the price of provisions, the quantity of capital employed, and the actual produce of the land, accompanied by a sound discretion as to the number of emigrants sent out, cannot, it appears to me, be easily replaced by a better one. The sooner the land is populated the sooner it produces all articles of home consumption, the quicker

it can provide a revenue for Government purposes and for the expenses of internal intercourse and administration. Every farthing drawn from emigrants in the shape of payment for land is so much lost to the colony; and if any other way could be devised to provide a fund for the purposes of emigration besides that of selling new lands, no one can doubt that it would be better to give to the emigrants the land for nothing, on the condition of their cultivating it.

But what has happened in New Zealand? Town and country lands were put up by auction, and land speculations were called into existence, which did not fail to damp the prospects, and exercise a most unfavourable influence on the infant colony. In these auctions Government did not consult the interests of those who had come to New Zealand as legitimate colonists, but only of those who were of no ultimate benefit to the colony—the land-jobbers. There was a thriving little town at Kororarika in the Bay of Islands; but, instead of supporting a place which already existed, a new town was proposed, that of Russel, situated in the same harbour, but in a place totally unfit for a settlement. 15,000*l.* were expended in the purchase of that spot; and much time of the surveyor-general and his assistants was lost in laying out a town; but, fortunately, the project was afterwards relinquished. A short time afterwards, April 16, 1841, the town of Auckland, which is situated in the estuary of Hauraki, on the eastern coast

of the northern island, was put up for sale. The mania for becoming suddenly rich by speculations in town allotments spread like an epidemic through all classes: some of the highest Government officers were infected by it; and, both before and after the day of auction, nothing but land sales and land prices were talked of. At the first sale only 116 allotments were brought to the hammer, covering a surface of 35 acres, 1 rod, 7 perches. Five rods and seven perches had been previously chosen by Government officers, who had that privilege; the rest was bought by persons who had time to resort to Auckland from the Australian colonies, after three months' notice in the Sydney Government Gazette, or from other places in New Zealand. The whole realised the sum of 21,499*l.* 9*s.*, and thus the Government received a sum which could be brought forward as a sign of the prosperity of the colony, and of the great value of land there: the truth, however, was, that a few land-jobbers raised the price thus high, having bought the ground in all the best situations. Not because they were convinced that the land had that value, but because they could sell it a few days afterwards, *parcelled out into diminutive pieces*, to the new emigrants, who daily arrived, and who required, cost what it might, a piece of land to erect their houses upon. By this the land-jobbers realized from 200 to 300 per cent. As no land for cultivation was to be obtained, every one thought it best to speculate in land, or to open public-houses, with

which the place soon became crowded. A town was made, and nothing was done to support it; a price was given for town land which precluded every chance of its gradually rising in value; on the contrary, as was foreseen by all who knew the resources of the country, it must decrease as soon as people opened their eyes, and thus cause the ruin of the unfortunate purchaser. How could it be otherwise, when a small building allotment actually sold, a short time afterwards, at the rate of 20,000*l.* per acre? The auction in the first place, and the land-jobbers in the second, drained the place of its scanty supply of specie; every article of consumption was imported and paid for in ready money, as nothing else could be given in exchange, and on account of the bad state of commercial affairs in Sydney, scarcely any credit could be obtained.

Who, on learning these plain facts, would feel inclined to emigrate to New Zealand when he can get land at a much cheaper rate in Canada, or even in Van Diemen's Land, or at the Cape of Good Hope, where he has the advantage of pasturage?

The establishment of colonies has at all times given scope for speculation, and it is not more than fair that the first immigrants into a new country should derive some benefit from their superior enterprise and discernment; but in this case the benefit was not conferred upon the colonists, but upon a class of people appropriately called land-sharks. The true birth-place of these jobbers seems to be the

Australian colonies. Their trade is a species of gambling, which is the more certain of success from its being countenanced by Government, and from its appealing to two of the most powerful of human passions—the love of independence, and the desire of gain. They generally possess no large pecuniary means—in many cases no means at all; they are the first on the spot where town-sales take place, and from the small number of lots which are put up for sale, and the very short previous notice given by the advertisements, they become the only purchasers. Immediately after the sale the allotments are subdivided, and put up for public auction. With the pertinacity of an old-clothes Jew, the land-sharks follow the newly-arrived emigrant; the advantage of buying an allotment is pointed out to the ignorant with systematic deceit and falsehood, and the victim is at length secured. As the first purchaser has only to pay 10 per cent. to Government at the time of sale, and the remainder in a month, the land-jobber stands the good chance of realizing before that time a large profit upon his supposed capital, which enables him to pay for his allotment; and laughing at the credulity of those whom he has imposed upon, he leaves the town at the first opportunity, with his nefarious profits, seeking another stage for his impositions. If the chances turn out against him, he forfeits his deposit, which is no great matter. Sometimes also the case happens that a land-jobber buys the land adjoining that of a re-

spectable settler, from whom he extorts his price, immediately after the sale, by threatening to cut the allotment up into a number of dirty lanes and alleys. Certainly all this is as much gambling as anything that can be called by that name, and must blight the prosperity of any new settlement. The necessity of providing land for agricultural and horticultural pursuits, as no *private* title to property was yet acknowledged, induced the Government to put up for sale suburban allotments—cultivation allotments —and small farms, the sale of which took place in September, 1841. The whole consisted of eighty-five allotments, containing 1275 acres, at the upset price of 20*l.* for the suburban, and 3*l.* for the cultivation and country allotments. Although more land had been surveyed, all was not put up for public competition; the best land was reserved, and, in consequence of this policy, only seventy-three allotments were sold, comprising an area of 559 acres, and these realized 4858*l.*, or nearly 8*l.* per acre Twelve allotments, or 716 acres, remained unsold, as they consisted of very indifferent land, were covered with large blocks of scoriæ, and, at all events, were not worth the upset price. The greater part of the country allotments did not fall into the hands of the industrious, but into those of the land-jobbers, who bought them not for the purpose of occupying them, but in order to cut them up, immediately after the sale, into towns and villages, which were put up for public competition.

In the immediate neighbourhood of Auckland towns and villages, never destined to exist except on paper, started up like the creations of a fairy tale. No. 2 of the suburban allotments, consisting of 3 acres and 3 rods, was sold for 303*l.*, and was cut up directly afterwards into thirty-six allotments, which were sold for 7*l.* 15*s.* per foot frontage! It is amusing to skim over the weekly paper of Auckland, and read the names of about six or eight towns, villages, and even racecourses, none of them above three miles from the town of Auckland, which were put up for sale in the short space of a fortnight.

The Government, after this, ordered a new town to be surveyed at the little harbour of Mahurangi, about fifteen miles to the northward of Auckland, in a barren and unpromising place; and many more were in contemplation, not to speak of the city of Nelson, which it was intended should be the capital, and to lay the foundation of which two ships were at that very moment traversing the billowy main.

It will be acknowledged on all sides, that to found a dozen capitals and commercial ports, and more than two score of villages, before any population is in the island, any produce raised to support a population, or any article of commerce ready to be exported, is subverting the natural order of things, and would have raised a smile on the lips of William Penn, who is often regarded as the father of modern colonization.

If the sale of lands in England at a fixed price seems therefore to be preferable to that by auction, it might be objected that the former carries with it one very serious evil; that the land which does not become a prey to the land-jobber generally falls into the hands of absentee proprietors; that the colonists sent out are almost all of the labouring class, and that the number of the latter might easily bear an undue proportion to the actual demand of labour in the colony, and fall for their support on the hands of the Government or of the Company. I am, however, inclined to think that the latter need not be feared in New Zealand, if proper measures are adopted. The more land that is sold in England the better, and the more labourers that are sent out, even if capitalists do not actually proceed to the colony, the more value the sections sold will have to the purchaser. But if the latter shall be the case, a free lease ought to be granted to the labourers, by the landed proprietors, or their agents, for at least fifteen years; say of ten acres each family, at the moment of their arrival in New Zealand. No one need starve in New Zealand who works (it is different with the Australian colonies, where articles of consumption are not easily produced); and it is such a class of small agricultural leaseholders whose toil will prepare the country that it may ultimately attract capitalists. Whatever merits a great subdivision of landed property may have, I do not hesitate to say that the nature of the country requires such a

subdivision in New Zealand, or its substitute—long leases. I am well aware that it has been proposed to support the *gentlemen* colonists, who, however, want capital, by the establishment of a loan society by mortgaging the land sections; but I do not believe that such a society is the most legitimate means to bring the colony into a state of production, and the land to its *real* value. Without entering into politico-economical questions, of too deep an importance to be fairly discussed here, I repeat that it need not to cause any fear if as large a stream of emigration is directed to New Zealand, of the labouring class, as the existing means allow, if some such measure as that above alluded to is adopted.

The value of New Zealand as a British colony cannot be estimated too highly. For a certain class of colonists it is preferable to New South Wales, which will never be anything else than a large pasture-ground. It is situated near numerous groups of interesting and important islands—the Navigators, the Friendly, and Society Islands, which are rapidly advancing in civilization and peaceful commerce, and some of which already afford sugar, coffee, and other colonial produce, and require in return articles of European manufacture. It is a country suited particularly to Europeans, from the nature of its climate and soil, and seems to be destined to become a prosperous agricultural and manufacturing state; but only a laborious peasantry can clear the road for this, and render the colony, in

time, an *entrepôt* of commerce—a depôt for transit trade, and a manufacturing country, none of which it is at present.

Nothing justifies the system of those high prices for land in New Zealand, even if a sale by auction were advantageous in other colonies; for it is more than doubtful whether a land-fund will be raised by these sales of crown lands, since it is well known that the greater part of the land is already disposed of to private individuals and to the New Zealand Company.

It is also doubtful, from the nature of the country—a bold shore with numerous inlets and harbours, and inhabited already at all these points by European adventurers—whether any revenue will arise by a regular system of customs, as smuggling is already carried on to a considerable extent. It is a question of great importance, whether Government could not effectually prevent all sort of land-jobbing by taxing uncultivated and unoccupied land, both in the towns and in the country; whether this tax would not be the true source of a revenue, and the means by which the land may return again to the Government. Such a revenue would not injure the industrious colonist. The position in which New Zealand stands as a colony is quite a new one. A country as large as England and Wales, and nearly as mountainous as the latter, is being peopled with Europeans from many different points at once. The intercourse between the various settlements,

whether by water or by land, is difficult, or at least uncertain. As in all countries of a similar nature, the centralizing power is weak, but the individual communities are strong and independent. Such countries nourish the spirit of freedom, and are the birthplace of enterprising municipal corporations. Of advantageous revenue none can be reasonably expected: if it is high, it comes from the duties on fermented liquors, and in that case it proves anything but prosperity. Smuggling to a great extent cannot be prevented, unless custom-house officers are established in at least fifty different places; an arrangement which must entail great loss upon the treasury. But it is damping the spirit of the colonist, if what is collected in one place is spent in another. I repeat, therefore, nothing will assist New Zealand so much as good municipal institutions; and the emulation naturally arising between settlements that are formed by people of the same nation will materially contribute to the general welfare of the community. New Zealand will rise *slowly*, but it must found its rise upon *agriculture*. Any material check to its prosperity need not be apprehended, if expectations are moderate, and if the land questions are liberally and speedily settled.

Not the least important feature in this colony is, that there exists already a numerous and deserving population of natives, who perfectly understand that they have become English citizens, and are aware of their duties and rights as such. It is pleasing to

reflect that the first serious attempt will be made in New Zealand to civilise what has been termed a horde of savages, to amalgamate their interest with that of Europeans, and to make them participate in the hereditary immunities and privileges of British subjects. The natives are the national wards of England, and it seems possible to prevent another blot appearing on the pages of history, regarding the intercourse of civilised nations with savage tribes.

I have attempted in the following pages to describe New Zealand as far as I have become acquainted with the country, its natural productions, and the state of its native population; and my purpose will be accomplished if future colonists obtain a true description of what they have to expect, and if they relinquish those ideas of the savage nature of its inhabitants, derived from a series of publications, written by persons whose knowledge of the country is so slight, and whose intercourse with the natives has been so limited, as to render it impossible for them to form a correct judgment.

PART I.

CHAPTER II.

Cook's Straits.—Queen Charlotte's Sound.—Te-awa-iti.—Cloudy Bay.—Whales and Whalers.

AFTER a rapid voyage of only ninety-six days, on board the New Zealand Company's vessel the Tory, we sighted the land of New Zealand with much satisfaction on the noon of the 16th of August, 1839. With the exception of the Island of Palma, one of the Canaries, we had seen no land since our departure from Plymouth. After we had doubled the Cape of Good Hope we sailed between the latitudes of 37° and 45°: the prevailing winds were from the south-west and the north-west. The atmosphere was generally thick and hazy, the weather squally, with sudden gales, accompanied by hail and sleet. The temperature of the air was sometimes as low as 40° Fahrenheit. This state of the weather, and a constant cross sea, which produced an incessant rolling of the vessel, made our life uncomfortable and monotonous. The number of sea-birds, consisting of various kinds of petrels and albatrosses, was remarkable. The habits of these feathered tribes, their elegant movements, and apparently inexhaustible strength of wing, were among our chief sources of amusement. The history of these birds is more

obscure than is generally supposed, especially their migrations, and the boundaries between which they are found at different seasons, and which depend, probably, upon the supply of food. The history of one bird is closely allied to that of some other animal, and so on in a chain the links of which are intimately connected. The same is the case with other animals, flying-fishes, albicorns, sharks, dolphins, porpoises, &c., which are usually observed during the course of a sea voyage.

We made the land to the southward of Cape Farewell, in the middle island of New Zealand. Only the summits of a mountain chain were visible, and even these disappeared when we altered our course to the north-east, and hove-to for the night in the middle of Cook's Straits.

On the morning of the 17th we were on deck at daybreak. We now saw more of the middle island, which seemed to consist of a chain of steep snow-capped hills, running through the middle of the island, and rising in a succession of ridges from the sea-shore. On the northern island we saw the mountains of Tararua in the neighbourhood of Port Nicholson; these also were covered with snow. At a farther distance, in a nearly central position, a bulky snow-covered mountain appeared, which proved to be the Ruapahu.

We drew nearer to the northern coast of the middle island, and approached Stephens's Island, which rises steep and abrupt from the sea, and seems to be covered with a dense forest from the water's

edge to the summit. After this we neared Rangitoto, or D'Urville's Island, the aspect of which is similar. The character of the land was in no way promising. Where no wood covered the steep sides of the hills, a barren-looking yellow stratified rock appeared. At two o'clock in the afternoon we rounded Point Jackson, the western headland of Queen Charlotte's Sound. On this point, which is a steep cliffy promontory, with a reef of rocks running out from it, we observed the palings of a native fortification. To our left we had the island which Captain Cook calls Long Island, and before us was the Island of Motuara. The former consists of a sharp ridge of hills, the formation of which is a yellow argillaceous slate. There is no land at their base, which is washed by the sea, but the island appears as if it were wearing away; and partly by the action of tide and waves, partly by the rains, several slips have been produced at its sides, where the bare rock is now visible.

When we entered the Sound we saw several canoes leaving a bay in the neighbourhood of Point Jackson, but they did not come up to us.

We steered between Long Island and Motuara. Before we came to an anchor in Ship Cove we descried a canoe coming from a neighbouring cove, called Cannibals' Cove in Cook's chart, and Anaho by the natives. It was a small and frail vessel, and contained eight men, who, it appeared, had been fishing. They were clothed in coarse mats, and some of them were painted with red ochre. When

they came alongside the vessel, they lashed their canoe to the main-chain, and jumping on deck with the greatest confidence, shook hands with us, and then squatted down. They sold us some fish and Swedish turnips for a little tobacco, and left us in the evening, with a promise to come back next morning. At seven o'clock we anchored at the entrance of Ship Cove, as the wind fell calm, and a strong ebb-tide was against us: we hoisted the New Zealand flag, and saluted it with eight guns.

The following morning the ship was warped deeper into Ship Cove, and moored to a tree. The scene which presented itself was very beautiful; the cove being as smooth as a lake, and surrounded by an amphitheatre of hills, which were clothed with primeval forest, and enlivened by the song of numerous birds. But, with the exception of these, we seemed to be the only living beings.

We remained in Ship Cove until the 31st of August; and I will here give a description of this part of the island, the result of daily excursions, which were extended as far as the dense virgin forest would allow me to penetrate.

Ship Cove opens in a semicircle towards Queen Charlotte's Sound, and is formed by two branches of the network of mountains of which this part of the island consists. In looking from our anchorage towards Cook's Straits, there appeared in the foreground Kapiti, or Entry Island: its shape is that of an obtuse cone. The horizon beyond it was formed by two chains of mountains, situated in the

northern island, the most distant of which was covered with snow. If we follow this panorama to the eastward we have the island of Motuara, which extends from N.E. by E. to E. by S. Motuara is a steep ridge of hills, the most elevated points of which are on its northern and southern extremities, and bear to N.E. and S.W. Motuara conceals from our view the southern headland of Queen Charlotte's Sound, Cape Koamaru, which is a promontory of the Island of Arapaoa. The southern end of this island is concealed by Moturoa, or Long Island. The latter is for the greater part destitute of vegetation, owing to the great declivity of its sides and the barrenness of the underlying rock.

The features of the land in Queen Charlotte's Sound are those of a very mountainous and thickly-wooded country. Hilly offsets run from the main chain towards the sea, and enclose small bays or coves, which are surrounded by the steep hills in the form of an amphitheatre. These bays rarely contain more than half a square mile in area of flat land. The soil is a light earth, consisting of vegetable mould, more or less mixed with shingle or sand. In these places there are generally some native huts, inhabited chiefly at the fishing seasons; and here also the natives find the soil most suited for the cultivation of the kumera, or sweet potato: for their other crops, however, they prefer the sides and ravines of the hills, where, after having burned the wood, they obtain for cultivation a new and

fertile soil, where the surrounding forest preserves a continual supply of moisture.

The geological formation of these hills is very simple. The rock is a stratified yellow argillaceous slate, or a pepper-coloured soft wacke. In a few places this rock is interrupted by basaltic masses, and in some parts by siliceous slate, or Lydian stone, of various colours.

Little decay has taken place on the surface of this rock. But it is covered with a moderate layer of vegetable mould, which naturally collects to a greater thickness at the sides of the watercourses and in gorges or ravines. Generally speaking, however, the vegetable mould is only a thin stratum, and the exuberance and freshness of the vegetation are chiefly owing to the constant humidity.

It is this moisture which also nourishes an extraordinary number of little streamlets, which discharge themselves from the sides of the hills into the sea. The profuseness of this supply of water, which is quite astonishing, is common to the whole of New Zealand, and gives her a great advantage over the dry and arid soil of New South Wales.

The vegetation of these hills is very luxuriant. Near the beach appear shrublike veronicas,[1] myrtles,[2] fuchsias,[3] solanum,[4] the karaka tree,[5] tutu,[6] and flax.[7]

[1] Veronica ligustrifolia. [2] Myrtus bullata.
[3] Fuchsia excorticata. [4] Solanum laciniatum.
[5] Corynocarpus laevigata. [6] Coriaria sarmentosa.
[7] Phormium tenax.

Higher up, the sides of the hills are clothed with trees, of which the rimu,[1] totara,[2] and mai[3] (all belonging to the pine tribe) are the most common, and attain the greatest thickness. Intermixed with these are the tawai[4] and hinau.[5] On the lower grounds these trees are almost impenetrably interwoven by liands (smilax), which attain great length, and the berries of which form the favourite food of the beautiful New Zealand pigeon,[6] the plumage of which displays all the colours of the rainbow. High tree-ferns,[7] with the cabbage-palm,[8] strike the eye as the most beautiful forms of New Zealand vegetation.

The number of small ferns is quite incredible, and a great many species may be collected at all times in a state of fructification.

Here and there stems of trees are overturned, either by the winds or from age; and although long preserving their outward shape, they are soon thoroughly rotten, from the abundance of moisture.

At the summit of the hills we find but little wood; and the manuka[9] and kahikatoa,[10] the esculent fern[11] and euphorbium,[12] and the epacris parviflora, form the chief part of the vegetation. The kahi-

[1] Dacrydium cupressinum.
[2] Podocarpus totara. [3] Dacrydium mai.
[4] Leiospermum racemosum. [5] Elaeocarpus hinau.
[6] Columba spadicea.
[7] Cyathea medullaris and dealbata. [8] Areca sapida.
[9] Leptospermum scoparium. [10] Leptospermum ericoides.
[11] Pteris esculenta. [12] Euphorbium glaucum.

katoa has sometimes a stem of about a foot in diameter, and affords the hardest and most durable wood found in New Zealand: it is of this wood that the natives make their agricultural implements. It appeared to me as if this wood was admirably adapted for the purposes of engraving and cotton-printing. The manuka supplies the place of the tea-shrub, as its leaves furnish a balsamic and agreeable beverage. The phormium tenax also grows upon the hills: it is indeed found everywhere, in swamps, on the driest hills, and on the sea-side, where it is exposed to the spray of the salt-water.

Where wood covers the summits of the hills the trees are stunted, and the forest becomes more open, as the liands seldom grow at an altitude of more than 800 feet.

I ascended the two highest hills at the back of Ship Cove, which from our anchorage bore to the north-west and south-west. The latter was without wood on its summit, and was found by a trigonometrical measurement to be 900 feet high. The former was covered with wood to its top; and from the height of the point of boiling-water, namely, 208°, with a mean temperature of 40°, I judged it to be 2093 feet. The hills in this neighbourhood do not appear to average more than 1200 feet in height.

The native who accompanied me was acquainted with the names of all the trees and birds, which he would tell me when I rested, after a tiresome scramble through the dense underwood. Whilst

walking he seldom spoke, except to relate, in broken English, tales of terrible animals, or divinities, which we should meet with on the summit of the mountain, and which would inevitably devour the poor maori (native), but could do no injury to the pakea (stranger). It appeared to me that he was sounding my belief in things about the existence of which he was not quite certain himself, and wanted to deter me from ascending to the summit.

In the lower regions the forest was much enlivened by birds. I shot some parrots,[1] pigeons,[2] and wattle-birds.[3] Among the branches of the trees hopped the neat fantail flycatcher,[4] and a social bird of a yellow colour, which has been depicted by Forster,[5] and which had much the habits of the finch. But these birds were the only beings of the animal kingdom I could perceive: I did not even see an insect. The smaller birds have a touching confidence, and came so near me that I could almost have seized them with the hand.

On the summit the silence was still deeper, and the white-breasted motacilla longipes (Pitoitoi) alone was heard pursuing its search from branch to branch after small dipterous insects. There was snow on the summit, and the thermometer stood at 41° Fahrenheit. The whole mountain was covered with vegetable earth. But I ascertained that the

[1] Nestor meridionalis: Kaka of the natives.
[2] Columba spadicea, Lath. Kukupa.
[3] Glaucopis cinerea, Gmel. Kokako.
[4] Muscicapa flabellifera, Gml. Piwakawaka.
[5] Orthornyx heteroclytus, Lef. Popokatea.

same rock, a metamorphic slate, formed its entire composition. The quantity of underwood greatly circumscribed the view, and I had only a glimpse of Motuara, Long Island, and the mountains near Cape Te-ra-witi. The dense forest of the hills also prevented any very extensive survey of the neighbourhood of Ship Cove, and I therefore limited my excursions to places within a short distance from the ship. One of these journeys was to the Island of Motuara. There is some excellent land there, where the natives have plantations. Although we were still in the depth of winter, many shrubs were pushing forward their blossoms ; one, a creeper (Clematis albida, or nearly allied to that species, which is a native of Van Diemen's Land), was loaded with a profusion of white flowers, which hung in festoons over the neighbouring trees. I have no doubt that this shrub would thrive in our climate, and become one of the greatest ornaments of our parks. We found several natives on the island, who rambled with us through the bush. Pigeons, the large parrot, and a small green ground-perrokeet (trichoglossus aurifrons, Wagl.), were there in great numbers. The natives were merely temporary sojourners, and had come from Cannibals' Cove to catch pigs, which overrun the island.

Another of my excursions was to Anaho, or Cannibals' Cove, where a small tribe of natives is located. The chief, Nga-rewa, with his wife and son, had been our daily guests on board the vessel. On landing all the natives left their huts to receive us,

and offered a shake of the hand as a welcome. Amongst the houses was a large one, which they had built for an Englishman, who at the end of the whaling season lived with them. His house formed also the meeting-house for the tribe, as they had lately become converted to Christianity by a native, who had been with the missionaries in the Bay of Islands, and had learned to read and write. Some of the tribe in Anaho had already acquired from him these arts, and all were anxious to learn them. These people were well provided with the necessaries of life; provisions were plentiful, and we were enabled to lay in a large stock of potatoes and pigs at a very moderate price. From the neighbouring whaling establishments they had obtained articles of European clothing in exchange for their commodities, and their condition seemed to be a happy one. I was astonished to find it so easy to deal with them; and instead of sinister savages, brooding nothing but treachery and mischief, as many travellers have depicted them, they were open, confident, and hospitable, and proved of the greatest service to me during my frequent rambles in the woods. A party of them had soon after our arrival established themselves in temporary huts opposite our vessel in Ship Cove; the women washed for us, and the men helped us to refit the ship. But for the interference of a noisy fellow of the name of "Dogskin," who belonged to another place, our good understanding would never have

been disturbed. The interruption was not, however, serious. It appeared that Ship Cove was claimed as the property of E Hiko, now living in Entry Island, the son of the former principal chief and warrior of the whole tribe, Tupahi, a native well known in England, which he had visited. E Hiko had buried a child in Ship Cove, and for that reason the place had become sacred, or "tapu." For this "Dogskin" wanted "utu," or payment, putting himself forward as E Hiko's representative. He was, however, compelled to lower his demands, and the matter having been amicably settled by a moderate present of tobacco, we had thenceforth permission to take as much wood and water as we wanted.

Besides the natives from Anaho, we frequently had visitors from neighbouring districts. From one of these parties, which came from Admiralty Bay, in four large canoes deeply laden with pigs and potatoes, we heard for the first time that Queen Charlotte's Sound opens by a passage into Cloudy Bay. The natives and Europeans, who go from Entry Island and the other parts of Cook's Straits to the latter place, generally choose this passage, which is by far the safest way for boats and frail canoes. We also heard that there was in this passage a whaling establishment, in which many Englishmen were living. Captain Cook suspected the existence of such a passage from Queen Charlotte's Sound, but the southern entrance of it is not laid down in his chart of the Straits, which is most

excellent, and far above my humble praise. At our departure from England, Nayti, the New Zealander, who had come in the Tory, had also pointed out this passage, which he said was the route commonly used by his people. But it was not known in England that there was a whaling establishment there, and still less that the passage was navigable for the largest vessels.

Another of our visitors was Te Wetu (the Star), the principal chief from Rangitoto (Red Sky), or D'Urville's Island. He was a New Zealander of the old school, who took much pains to render himself agreeable. He was rather fond of the pleasures of our table, and stayed several days on board, where he at once conformed to all the rules of European etiquette, and evinced the utmost good humour. Joy and mirth, I have found from experience, are always sure to find an echo in the susceptible heart of the New Zealander, and are also the best means to secure his good will and confidence. When "the Star of Rangitoto" left us, he expressed himself delighted with the good treatment he had experienced on board the Tory, and invited us to come and pay him a visit.

Captain Chaffers found the latitude of Ship Cove, at the end of the rocks on the south side of the beach, to be 41° 5′ 45″ South, and the longitude, by means of chronometers from England, 174° 20′ 15″ East, only differing three-quarters of

a mile to the West of that assigned by Captain Cook. The variation of the compass is 14° 20′ E.

In consequence of the information which we had received from the natives, our storekeeper was sent up Queen Charlotte's Sound to the whaling establishment at Te-awa-iti. He returned on the following day, and in his company were two English whalers. The sight of the first European faces we had beheld since our departure from England, and in a part of the country where we scarcely expected to see any, was very agreeable, especially as they understood the native language, and one of them was the Englishman who was living in Anaho during the summer season, and was well acquainted with the Straits, where he has spent several years in the hazardous avocation of a whaler. He undertook to pilot the Tory up the Sound to Te-awa-iti. Accordingly, Te Wetu and Ngarewa, the chiefs of Anaho, were sent ashore, as soon as we had got up our anchors, and only Wiriamu (or Williams), the native missionary, had permission to accompany us. A fine breeze swelled our sails, and, favoured by the tide, we ran up Queen Charlotte's Sound on the 31st of August. The country was very picturesque, consisting generally of wooded hills, and forming a number of bays and coves on both sides. As I shall afterwards speak of several of these bays, which I visited, and each of which forms a separate harbour, I will only mention here, that, after having seen

most of the good harbours of New Zealand, I still adhere to my first impression, that the Sound is the most commodious and extensive, the most easy of access and navigation, especially from the regularity of the tides, and the most sheltered, of any in New Zealand. Besides Ship Cove, East Bay and West Bay, and the proper termination of the Sound, form inlets several miles long; in fact, the whole Sound is perfectly landlocked, and has deep water close inshore. As a harbour it well deserves the enthusiastic praise which Captain Cook bestowed upon it.

At four o'clock in the afternoon we entered that part of the channel which Captain Chaffers afterwards surveyed, and named Tory Channel. A pyramidical hill of some height, and without wood at the top, marks the entrance into this narrow part, which is here about a mile broad. Everywhere the shore showed the clay-slate formation. A small rocky island, called Moioio, soon became visible, on the beach of which several canoes were drawn up. On its summit were formed pa's, or villages, and all the inhabitants looked down on us as we passed close by. Several canoes with natives were out fishing. They had various kinds of fish, especially fine mullets and gurnets, which they offered for sale, but we did not admit the men on board. The number of natives on this island, I was told, was about 150. Several recognised Nayti, who belongs to the same tribe. Their character was pronounced by the whalers who accompanied

us to be thievish and troublesome; but I have learned to regard the evidence of Europeans against the natives with great distrust. Her Majesty's brig Pylorus had been here during the previous year, to punish a theft which the whalers stated had been committed by the natives. The captain was satisfied with firing some shots into the rock, and the vessel went afterwards as far as the settlement of Te-awa-iti, and returned through the north-west entrance of Queen Charlotte's Sound. The Pylorus did not, therefore, actually go through Tory Channel. At all events, I think that the account of the Tory's passage of this channel and Captain Chaffers's survey of it are the first published.

We had the advantage of a strong tide, of at least five miles an hour, which was sufficient to carry us forward when the wind failed, as frequently happened on account of the landlocked position of the Sound. Night had however already set in when we anchored before the settlement Te-awa-iti (the little river). But even then the aspect of this place offered a most exhilarating scene. Large fires glared through the darkness from the neighbouring beach, lighted for the *trying out* of the blubber of a large whale, which had been brought in that morning; a confused sound of voices reached our ears, and proved to us that even in this remote corner of the world it was the custom to celebrate any happy event with profuse libations. Mr. Barret, superintendent of one of the whaling establishments, came off in his

boat. He has been living twelve or fifteen years in Cook's Strait, and the relation of his adventures and migrations in company with the native tribe, to which he is now joined, made the evening pass away very quickly and agreeably. His ruddy and good-humoured countenance showed, at all events, that such a life had not occasioned him many sleepless nights, and that in New Zealand a man might thrive, at least as far as regards his bodily welfare.

On Sunday, September 1, we went ashore early in the morning. We passed several huge carcases of whales sunk under water. A curious spectacle presented itself on the beach, which was covered with remains of whales—skulls, vertebræ, huge shoulder-blades and fins; and the blubber, in pieces a square foot in size, was still boiling in large pots: the fire was fed with these pieces of blubber, after the oil had been boiled out of them. There was much stench from whale-oil, but this was disregarded, so great was the interest I felt in the whole process. After I had inspected the trying-houses, in one of which a native of Australia was occupied, of whose intelligence and quickness his master spoke very highly, I went through the village. Some of the houses were substantial wooden buildings, but the majority had thatched walls of liands and bulrushes, with a roof of the same materials. They consisted of one floor, and contained two or more rooms, with a spacious chimney. The floor is of clay firmly

compressed and beaten hard. All the houses have been built by the natives, and some are not inferior to those of the villages in many parts of Europe. The whalers received us with a hearty welcome wherever we came. They are about forty in number, and all live with native women. Their offspring, of whom I counted twenty-one in Te-awa-iti, have finely-cast countenances, and their features remind us little of the admixture of a coloured race; the skin is not so dark as that of the inhabitants of the south of France; they generally inherit from the mother the large and fine eye and the dark glossy hair; there are, however, many individuals with flaxen hair and blue eyes. If you enter a house, you find the wife and her relations generally sitting around the fire and smoking. The "teneï ra kokoe pakea" (welcome, stranger) is heard from every mouth. These women do all the domestic labour, and excel their European husbands in sobriety and quiet disposition.

Te-awa-iti is situated on the east side of Tory Channel, about two miles from its southern entrance, and twenty-eight miles from the northern entrance of Queen Charlotte's Sound, on the island of Arapaoa, which is throughout its extent of a very hilly nature, intersected by ravines and covered with wood. Towards the channel the island forms several small coves, which are now inhabited; towards Cook's Straits, however, the shores are bold, rocky, and much worn by the fury of the tides and waves. At Te-awa-iti, Tory Channel is three miles broad, and

throughout its extent from ten to fifteen fathoms deep. The history of this settlement is not without interest. About twenty years ago, a Mr. Guard, who visited the shores of New Zealand on a sealing expedition, discovered the southern entrance of Tory Channel. As the seals rapidly disappeared, he turned his attention to the whales, which he found to visit the channel in great numbers. He built a house on Te-awa-iti beach, which was then uninhabited; but he suffered much from the natives, who had just been driven from their possessions in Cook's Straits by Tupahi and Rauparaha, and who lived in a straggling manner farther to the southward. Guard soon quitted Te-awa-iti, but was succeeded by other adventurers, especially Messrs. Thoms and Barret. These persons, being without resources, as their property consisted perhaps at first only of a whale-boat and some whaling-gear, made chase on the whales, which they killed for the sake of the baleen only. Afterwards speculators at Sydney gave their support, advanced merchandize to them, and annually sent vessels to transport the oil. In the train of the Europeans arrived a tribe of the Ngate Awa natives from the neighbourhood of Mount Egmont, in the northern island, and with their protection the settlers could more effectually resist the attacks of the original natives of this part of the country.

There are three whaling establishments in Te-awa-iti, and in a small bay a short distance from it,

called, from its proprietor, Jackson's Bay. These establishments have a number of boats in their service, manned with white people and natives. Sometimes other inhabitants of the beach have boats of their own, and sell their oil to the Europeans. The boat's crew are paid a certain sum, either for each whale brought in, or for every tun of oil, and they derive their chief profits from the practice of paying their poorer associates with the necessaries of life, slops, and articles of luxury, as tobacco, and especially spirits. The whalers are constrained to take these articles from their employers, who put their own prices upon them, which are exorbitant. They take care never to allow their dependents to get out of debt; this they accomplish by profusely providing them with drink. I do not, however, mean to assert that they are large gainers in these transactions; they have to do with a reckless class of people,—runaway sailors and former convicts from New South Wales, who do not think much about leaving their employers in debt, and go off, without giving much notice of their intention, in some of the numerous vessels cruising about the Sound and Cloudy Bay.

The jealousy existing between the several employers, the system of decoying each other's men by every means in their power, the character of the population itself, the universal use of adulterated and poisoned spirits, have created a state of society in which it is only to be wondered that, in the ab-

sence of all restraint and law, outrages on each other's property and persons are not of a more frequent occurrence.

I was astonished, and at the same time gratified, to find that the character of the natives had been so little affected by this state of things. I have not seen one instance of drunkenness amongst them, common as the vice is amongst the Europeans; although mixing with the latter in the boats, they did not join in their revelries, which are contrary to their taste and inclinations, and which do not begin until the evening, after the return of the boats.

In the summer season the whalers live dispersed over the Sound; sometimes trading in a small way with the passing ships in potatoes and pigs, which they obtain through the families of their wives, but more generally spending their lives in idleness. There are, however, some very respectable men amongst them, who have been provident enough to cultivate small patches of ground, and these of course live in comparative ease and comfort, as all European vegetables thrive extremely well: poultry also increases rapidly and throughout the year: goats thrive better than cattle, to the introduction of which the almost total want of grass is a most serious objection.

As whales and whaling were the principal objects which in Te-awa-iti, and afterwards in Cloudy Bay, excited my curiosity, I may be allowed to give here a short account of that interesting and valu-

able animal—the whale; in the chase of which, during the winter season, many boats are sent out from the establishments on the coasts of New Zealand. It is called the "black whale, or right whale" (Balæna Australis, or Antarctica). Sometimes chase is given to the finback and humpback whale, which, with the black whale, belong to the great division of the cetacea known by the sieve-like or screening apparatus (baleen) with which they are provided; this it is which furnishes the whalebone of commerce, and distinguishes the whales above referred to from the cachelots, or sperm whales. It is seldom, however, that either a finback or a humpback (so called, the former from possessing a true fin on his back, and the latter a fat and cellular hump) is caught, not only on account of their superior cunning, greater wildness and celerity, by means of which they are enabled to run out the longest line, but also because, giving less oil than the black whale, they are not so frequently pursued. The spermaceti whale is not uncommon in the latitudes of New Zealand, and often falls a prey to the whaleships which cruise in the open sea; but the cachelot does not approach shallow coasts and inlets, as its habits are different from those of the black whale. Shortly before I arrived at Te-awa-iti a sperm whale was driven ashore which could only have been dead a very short time; it gave about two tuns of oil.

It has been said that most of the cetaceous animals are cosmopolites, and that the sperm whale

especially lives under every degree of latitude, both to the north and south of the equator: a statement so entirely at variance with our knowledge regarding the distribution of animals throughout the globe should be received with very great distrust. It is true that the medium in which they live offers to marine animals a very wide range, and great facilities to exchange, in the different seasons, the glacial seas for the equatorial ocean; but until we have strictly examined the anatomical, and especially the osseous, structures of all the species which belong to the cetaceous tribe, we are not justified in regarding them as identical in both hemispheres. The porpoise of the New Zealand seas (Delphinus Novæ Zelandiæ), which is figured in the 'Voyage de l'Astrolabe,' plate 28, is decidedly a peculiar species; and we have not yet sufficient data to pronounce that the whale is independent of what appears to be a general law of nature. The whalers, it is true, allow the identity of the Greenland sperm whale and northern right whale with those of the antarctic seas, but their evidence is not sufficient. Cuvier admitted the difference between the Balæna Borealis and the Balæna Australis, or Arctica and Antarctica. The latter, described by him from a specimen prepared at the Cape of Good Hope, differs in the number of its vertebræ, as it possesses seven collar, fifteen dorsal, and thirty-seven abdominal; in the whole fifty-nine. The Balæna Arctica possesses only seven collar and thirteen dorsal vertebræ. From a very

accurate drawing which Mr. Heaphy, the draughtsman, made for me of a cow whale, which was brought into Jackson's Bay, and measured sixty feet in length, I am convinced that the southern black whale is a different animal from the northern, and has been added by Mr. Gray to the system under the name of Balæna antipodarum. This whale was drawn while afloat, and just after it had been brought in; its shape was therefore unaltered. But I was unable to determine this difference from anatomical structure, as the carcase, after having been freed of the blubber, immediately sank, and amongst the osseous remains on the beach I could find no complete skeleton.

The black whales of the southern hemisphere appear to be considerably inferior in size to those of the northern. The cow whale above alluded to was regarded as of an unusually large size; but Scoresby tells us that he measured whales in the Greenland seas seventy or seventy-two feet long. Both the northern and southern Balæna occupy only the second place in regard to size in the animal creation. Mr. Beale measured a spermaceti whale on the coast of Japan of the "enormous size of eighty-four feet, and its circumference in this instance was not less than that of a Greenland whale of the largest size."

Almost all the whales which are killed on the shores of New Zealand are females, or cows, and their calves. The male, or bull, is very rarely caught, as it never approaches the land so near as

the female, and is more shy and wild. The season in which whaling is carried on is from May to October. In the beginning of May the cows approach the shallow coasts and smooth waters for the purpose of bringing forth their young. This period lasts about four months, as in May whales are seen with newly-born calves, and cows have been killed in July in full gestation. During the same months also copulation is sometimes observed by the whalers. But from these data it is impossible to draw a conclusion on the real period of gestation in these huge animals, which has never yet been satisfactorily determined. In company with the cows are also the calves of the preceding year or years, for it is still uncertain at what age the whale attains its full size and leaves the mother; these young whales are called scrags, and they yield about four tuns of oil.

It appears that the female generally produces but one calf at a birth: the cow is indeed sometimes seen with two; and although in this case it is the opinion of the whalers that one is an orphan calf, yet it is probable that the black whale, like the northern sperm whale, occasionally produces twins. A calf, which appeared full grown, and which was cut out of the mother a short time before my arrival in Te-awa-iti, measured fourteen feet.

The whale is a truly migratory animal, and its migrations are the most interesting part of its history. They arrive at the coasts of New Zealand in the beginning of May from the northward, go through Cook's Straits, keeping along the coast of

the northern island, and pass between the latter and Entry Island. This is borne out by the fact that they are never seen on the opposite coast, nor do they enter the northern entrance of Queen Charlotte's Sound. From Entry Island they sweep into Cloudy Bay, and at the end of October they go either to the eastward or return to the northward. In the beginning of the season the chase is said to be most successful in Cook's Straits and Te-awa-iti; in the three latter months in Port Underwood, which is only thirty miles distant. From the month of June they begin to show themselves near the Chatham Islands, 150 leagues to the eastward of New Zealand, where their number increases with the termination of the season in the latter place. During the six remaining months of the year the ships cruising in the "whaling-ground" fall in with many whales. This whaling-ground extends from the Chatham Islands to the eastward of the northern island of New Zealand, and from thence to Norfolk Island. It is curious that the whalers assert that this whaling-ground is nothing but a shoal, although I am not aware that soundings have ever been obtained. Perhaps Captain Ross, who is now in the South Seas provided with sounding-lines, will confirm a fact which is of some importance in the natural history of this animal. The migration of the whale is probably owing to its search for food; but we must still regard it as a subject for inquiry, which cannot be terminated before we know many more particulars connected with it, and espe-

cially how far it depends on the greater or lesser quantity, in certain localities and at certain seasons, of the small animal of the Medusa kind upon which the black whales feed. Their approach to the shores of New Zealand, however, is particularly connected with the process of parturition, as I have already mentioned. In the month of June they are observed in the same condition, viz. with calves, at the Cape of Good Hope. It seems as if certain herds of whales, if I may be allowed to use that term, which occupy a limited district, visit at the end of the period of gestation the bights and inlets of those countries which are next to their feeding-grounds: the same is the case round Van Diemen's Land. But it has yet to be proved that the black whale of the Cape of Good Hope is the same with the black whale of New Zealand.

Besides this general migration, which, until more accurate data are obtained, I do not conceive should be termed a circumnavigation, but merely a migration of different species in a certain marine district, there exists also a daily one. These fish approach the shores and bays with the flood-tide, and quit them with the ebb. In their general migrations, also, they seem to be influenced by the direction of the tides. Whales are often seen in places where the depth of water does not much exceed their own breadth, rubbing their huge bodies against the rocks, and freeing themselves of the barnacles and other parasitical animals with which they are covered.

The maternal affection of the whale for its young is very great. As soon as the mother observes a threatened danger, she clings, as it were, to the calf, tries to hide it, and often takes it between her flooks (fins) and attempts to escape. She has even been observed to carry off the calf when it had been killed, but not fastened upon. Sometimes, however, she seems to be infatuated, and heedless of all that passes around her. If the calf has been once fastened upon, the mother will never leave it. The whalers assert that the young cows have less affection for their offspring than the old ones, and will desert them at the appearance of the least danger. It is, however, the affection of the whale for her young which becomes the principal means of her destruction. The calf, inexperienced and slow, is easily killed, and the cow is afterwards a sure prey.

It is not known in what position the cow suckles her calf. The teats, which are two in number, are abdominal, and situated between membranaceous folds on both sides of the genital organs. I was astonished to find them so small. In a female, whose mammæ were full of a fat milk resembling cow-milk in taste, the teats were not larger than those of a cow. The operation of suckling never having been observed, it is no matter of surprise to find the whalers denying that the cows suckle their calves; there can, however, be no doubt of the fact.

The manner of carrying on whaling is so well known as to render it unnecessary for me to dwell

upon it at any length. The whale-boats are admirably adapted for the purpose for which they are intended. They are of various construction, and are designated as English, French, or American: each has some peculiarity to recommend it. They are capable of resisting the rough sea of Cook's Straits, but are at the same time swift and buoyant. When starting on a whaling expedition, the boats leave Te-awa-iti before the dawn of the morning. Each has either five or six oars, and a crew accordingly. The boat-steerer and headsmen are the principal men in the boat, and are generally Europeans; the rest are natives. They pull to the entrance of Tory Channel, where a view opens over Cook's Straits and Cloudy Bay from the southern headland, where they keep a "look-out" for the spouting of a whale. The boat which kills the calf claims the cow, even though it should have been killed by another boat's crew. If a whale has been killed, the different boats assist each other in towing it to Te-awa-iti. I once saw ten or twelve boats towing-in a whale. Each boat had a little flag, and the whole scene was gay and animated. One day a calf had been killed, and the cow, having been fastened upon, but not despatched, was towed inside the channel. Gasping in the agonies of death, the tortured animal, when close to our ship, threw up jets of blood, which dyed the sea all around; and, beating about with its tail, it broke a boat right in the middle, and threw the crew into the water; but it at length

died, exhausted from the many wounds which the irons and harpoons had inflicted. The calf was stated by the whalers to be six weeks old (on what grounds I do not know), and was twenty-four feet long. It was cut up in a few minutes, and gave several barrels of oil. The process was so rapid, that when I came ashore I found only the head. I cut out the brains, the weight of which, amounting to five pounds and one ounce, astonished me greatly. The whalebone was very soft, and therefore useless. There were two hundred plates of it on each side of the roof of the upper jaw. I got the whole roof cut off, and, intending to dry and preserve it, I placed it on the roof of a native house; but on the following morning I had the mortification to find that the rats and native dogs had found their way to it in the night, and had eaten all the softer parts, so that the rest fell to pieces.

A portion of the heart of this calf was roasted and sent to our table. In taste I found it very like beef, but it was darker in colour. The cow was sixty feet long, and measured between the fins on the belly eighty-two inches. Her skin was a velvet-like black, with the exception of a milk-white spot round the navel. As regards the colour of the whale, I have been repeatedly assured that it is sometimes speckled, and that even perfect albinos, or cream-coloured ones, are seen, which must indeed be beautiful animals. The fat or blubber of this whale was nine inches thick, and yielded eight tuns and a half of oil.

Whales have been known to yield twelve or thirteen tuns; but I have been told that so large a quantity is now very rarely obtained, from the great decrease of the whales. A whale which yields nine tuns is at present regarded as a very good one.

The tongue was of a white or ash colour, blackish towards the root. This organ gave several barrels of oil, and is a monopoly of the "tonguer," or "cutter-in." The latter operation is performed in Te-awa-iti near the shores, where by means of a windlass the whale is raised to the surface of the water under a scaffold called the "shears." The blubber is cut off in square pieces by means of a sharp spade; it is then carried to the shore, and immediately put into the trying-pots. The "cutting-up" of a whale, *secundum artem*, is a process which requires great proficiency, like that of the skilful dissector, who separates the cutis, and with it at once all fat and cellular tissue, from the subjacent muscles. In the whale the blubber is to be regarded as the cutis, in the cellular structure of which the oily matter has been deposited. Shortly after the death of the fish the epidermis comes off in large pieces, looking like oiled and dried satin.

As soon as the process of cutting was over, the natives, who had come with their canoes from the Sound, cut off large pieces of the flesh, which they carried off to feast upon. They also fished in the evening for sharks, and a curious gelatinous fish, which fastened in numbers on the sunken carcase,

and which is nearly related to the Myxine glutinosa of our latitudes.

There are the following whaling establishments on the coast of New Zealand:—

Te-awa-iti,	Entry Island,
Cloudy Bay,	Evans's Island,
Parurua,	Taranaki,
Banks's Peninsula,	Table Cape.

The number of whales annually captured by these establishments is about 120. Each whale, on an average, yields six imperial tuns of oil, making, in the aggregate, 720 tuns, which, before the establishment of the settlements of the New Zealand Company, was sold on the spot to small vessels, or sent to Sydney, when the whaling was carried on at the expense of Sydney merchants. Those who were at the head of the establishments in New Zealand were paid at the nominal price of 10*l.* per tun; I say nominal, because the payment was made in dear and bad slops, whaling-gear, and, most of all, in adulterated spirits. The same oil sells in the London market for 27*l.* per tun. The value of the oil of these shore stations is, therefore, at the highest, 20,000*l.*: to this sum must be added 3000*l.* for the whalebone, or baleen, for which the whalers receive 78*l.* a ton, but which sells in London for from 122*l.* to 130*l.* A large whale yields about five cwt. of baleen.

I must observe here, that the sort of shore-whaling which I have just described is very detrimental

to the whale fishery in general, and the number of whales has decreased from year to year. The female whale approaches the land merely for the purpose of bringing forth and rearing her young. Later in the year, when the calf has attained a certain size, the cows leave the immediate neighbourhood of the coast, and return to the "whaling-ground," where the males share with them the dangers resulting from the pursuit of man. Would it not, therefore, be advisable by legislative enactments to put an end to the whale-fishery from the coasts, and to restrict it to a certain distance from shore, where it would have to be pursued in ships? To kill the calves in order to capture the mother, or to kill the latter in the time of gestation, is an unprofitable and cruel proceeding; but it carries with it its own punishment. In a few years this trade, of which, from the geographical position of the "whaling-ground," New Zealand might have continued to be the centre, will be annihilated. Seals, which were plentiful in New Zealand, but were slaughtered in the same indiscriminate manner, have already entirely disappeared. The protection proposed would only be such as the governments of all civilized nations have long bestowed on their coast fisheries during certain seasons. Unfortunately there exists a belief that the female whale in a state of gestation, or immediately afterwards, yields the greatest quantity of oil; but I have reason to believe that this is entirely un-

founded. If we may judge from analogy of fishes, birds, and the whole class of mammiferous animals, the assertion must be untrue; and this view is confirmed by the testimony of those who carry on the fishery from ships, that, instead of the whales being fatter during that time, the contrary is the case, and that the average result of the fishing on the whaling-grounds exceeds that of the coast fisheries. I have also heard that very often cows have been brought into Te-awa-iti which were remarkably lean, and did not yield more than five or six tuns of oil. We must also expect the oil from whales in the period of gestation to be inferior in quality, from the great change which then is effected in all the solid and fluid elements of the body.[1]

Whilst I am thus pleading the cause of the whale, I am well aware that the most effective mode of preserving the fishery would be to spare the cows and calves altogether, and to kill merely the bulls. The whalers can distinguish at a considerable distance a bull from a cow;—the elevation near the spout-holes, called the top-knot, being much higher in the bulls, and this part is always above the water; but such an extensive protection is probably impracticable.

It would suffice if, during the winter season, or

[1] From a recent report of a captain of the royal navy of France it appears that the New Zealand whaling in this year (1842) has been entirely unsuccessful, and that most of the whalers are beginning to cruise on the north-west coast of America.

from May to October, all whaling was prohibited within a certain distance from the shores of New Zealand, and a man-of-war cutter kept to enforce obedience to this rule.

Behind Te-awa-iti the land rises in steep ravines, which are covered with various kinds of wood, or are cultivated by the natives. Whenever the weather permitted, I rambled through the delightful and shady forest. It was inhabited by flocks of the kaka, or large parrot (nestor hypopolius, Wag.), one of the three species which inhabit the islands of New Zealand; it is closely allied to that isolated and now probably exterminated species, the Philip Island parrot, and has many peculiarities in its shape and habits. The bill is more elongated than that of other parrots, and of a greyish colour; the forehead and crown are brown, with a tinge of green; the face and ear-coverts yellow, tipped with red; the neck, breast, and wings of a dull red, with a dark-green tint; the abdomen is of a deep red, and the tail brownish. The male is smaller than the female, and of a redder plumage.

This bird lives upon the fleshy and amylaceous fruits of the hinau (Elacocarpus hinau), of the tawai (Leiospermum racemosum), of the miro (Podocarpus ferruginea), and of the mai (Dacrydium mai). It only feeds upon the fleshy parts of these fruits, and has not the power of opening their hard stones with its beak. The tongue is small, terminating in several filaments. In captivity it feeds

upon bread and potatoes, but most readily on the latter. These parrots seem to have regular times of feeding: early in the morning they are found on the trees which yield their food. During the heat of the day they play about quietly in the topmost branches of high trees. Before the sun sets they assemble and fly with discordant screams over the forest, alighting sometimes on a dead tree in an open spot, or where their curiosity is in any way arrested. When it is dark they become silent; but rarely an hour of the night passes that one of their fluting calls is not heard; and with the dawn of the morning they are again in full activity. They nest in hollow trees, and are said by the natives to lay four or five white eggs. Their flesh is tender and well-flavoured, and the natives are very expert in enticing them by means of decoy-birds, or by imitating their cry. When one is caught or wounded, the rest hover about it with screams, and, one after another, become the victims of their commiseration.

Above Te-awa-iti, towards the southern entrance of Tory Channel, are two other bays, Wanganui and Hokokuri. The access to them is over the hills or by water, as a protruding and rocky shore separates the bay of Te-awa-iti from them; this is, in fact, the general character of the coast in Queen Charlotte's Sound. In Hokokuri Bay, on a fine flat of fertile earth about one square mile in extent, stands a large native settlement. The natives received us with their usual politeness, and afterwards

gave us a canoe in which to return to Te-awa-iti. The man who seemed to be the principal chief was of a fine powerfully formed figure, with a noble countenance, and reminded us of a Roman tribune, wrapped, as he was, in a new native toga.

On another of my excursions I traced Tory Channel towards its northern entrance, for the purpose of crossing the neck of land which separates Port Underwood in Cloudy Bay from Queen Charlotte's Sound. A more accurate examination of the coast showed everywhere the argillaceous schist in stratifications from east to west, and dipping to the north. Sometimes no stratifications could be observed, and the rock was of a more granular nature, but still very soft, and with fissures in many directions, as if it had been acted upon by fire. I observed in the Straits no indications of any other kind of rock, except the occasional appearance of Lydian stone, massy basaltic rocks, and greenstone. It became very apparent to me, from the various transitions from one kind of rock to another, that they had assumed that structure in consequence of the infusion from below of the trappean rocks, and the consequent metamorphosis of the slate-rocks. I could not discover any trace of organic remains in the latter, and it is therefore most probably to the transition series that the hills in Queen Charlotte's Sound belong.

Notwithstanding the barren quality of this substratum, and the want of decomposition on the sur-

face, a character common to all the hills of this formation, the vegetation is by no means defective: the moisture of the atmosphere makes up for the deficiency of the upper stratum. The vegetation reaches to the sea-shore, and does not suffer from the salt-water.

I visited the island of Moioio, and afterwards came to a native settlement called Toko Karoro, on the island of Arapaoa. The natives in the latter place were sitting around a fire; some were busy in carving the head and stern of a new canoe, others were smoking and talking. This little village is situated on a tongue of land formed by a branch of the hills, very narrow on the top, and falling on both sides towards the sea. This singular position makes it a very strong place, and easy of defence. A steep path leads to the summit of the ridge, where clearings for native cultivations appear in the ravines. When I use the term "clearings," I mean those spots where the forest had been set on fire: half-burned stems of trees were lying in confusion over each other, and in the places between were patches of potatoes. The number of pigeons in these grounds and on the skirts of the forest was very great; in less than half an hour I shot twelve. An intelligent-looking boy, his goodnatured face painted with red ochre, pointed them out to me quicker than I could load my gun.

It is also in these open and cultivated spots that the kakariki chiefly lives. This is a small

paroquet, and the second one of the parrot tribe existing in New Zealand. It is a very beautiful bird, and measures eleven inches. The crown is crimson, with a few feathers of a golden yellow at the root of the beak; the rest of the plumage is green, and the quill-feathers of an azure blue. The tail is long and arrow-shaped. This paroquet feeds on potatoes, and on the berries of the Solanum laciniatum and other fleshy fruits; it lives in flocks, and on the ground, or the lower branches of dead trees. In some parts of New Zealand it is very common, but generally follows man, as it is only in cultivated places that it can find the shrubs which yield its favourite food.

On both sides of the tongue of land to which I have alluded, the Sound forms deep bays, perfectly sheltered, and very fitted for the anchorage of ships. Opposite to it, on the mainland, is another large bay, called Oyster Bay, from the thick beds of rock-oysters which are found there.

After leaving the village we crossed to another bay, E-Taua. This bay also is spacious and pleasant. Kingfishers, oystercatchers, tuis,[1] and cormorants,[2] enlivened the trees on its shores, and many birds were singing in the forest.

From this bay we crossed the hills in order to reach Port Underwood. They form a deep saddle, over which the path leads. Everywhere on the

[1] Anthochœra concinnata, Vig. and Horsfield.
[2] Pelecanus pica, Forst.

surface sharp shingly fragments of slate are strewed about. Low stunted fern and manuka are abundant. From the top of these hills the northern entrance of Queen Charlotte's Sound opened to our view. The island of Motuara bore north-by-east. We saw the sea over the narrow island of Arapaoa in Cook's Straits, and our eye wandered over Ship Cove, Shag Cove, East Bay, and part of West Bay. The land has everywhere the same mountainous and intersected character. A few paces farther another extensive panorama opens: we look into Port Underwood, a deep inlet, formed on both sides by chains of hills, from which numerous buttresses run out towards the sea, and form as many small coves. Port Underwood opens to the south-west into Cook's Straits. The coast sweeps round towards Cape Campbell, forming what Cook has named Cloudy Bay, and a range of high snow-clad mountains in the middle island, called Kai Koura (Feast of Crawfish), shut in the view.

The chain of hills which form Port Underwood to the south-east, in fact all the land which separates that port from Tory Channel, consists of a succession of steep and barren ridges. Only here and there a patch of brushwood or trees relieves the brown and gloomy tint of the Pteris esculenta. The chain to the south-west, however, on the other side of the harbour, is more wooded, although the hills are equally steep; its offsets branch into the sea, and form a few small coves. To the south-south-

west these hills turn into the mainland, and the hilly character of the coast gives way to a comparatively level country, which stretches towards Cape Campbell, and is bounded by the snowy mountains above mentioned. Here the Wairao, a moderate-sized river, with a bar at its entrance, discharges itself into Cloudy Bay. The quantity of level land seems to be largest in the neighbourhood of this river, and the surface is covered alternately with fern and groves of high trees.

We descended on a ridge of the hills to the head of Port Underwood. On both sides of this ridge the sea forms bays. On the right is a village, with about sixty inhabitants, and the neighbourhood is well cultivated. Nayti, the New Zealander who accompanied us from England, found here many *brothers*, which word, however, generally means cousins. One of them, a very suspicious-looking fellow, painted over and over with kokowai, never let the tomahawk out of his hands, and there was an appearance of sly hostility in his manner; indeed, he was the only New Zealander who gave me any apprehension, which was probably altogether unfounded. Nayti, who was dressed in the best Bond-street style, cut a pitiful figure; civilization had taught him nothing but to be ashamed of his relations. Observing his embarrassment, we withdrew to some distance, leaving him to indulge his natural feeling in hongi and tangi, or nose-rubbing and crying.

To the eastward Port Underwood forms another spacious inlet, called the Inner Harbour; it is the most sheltered part of the whole port, but I do not know whether it is accessible for large vessels.

Towards evening Nayti's relations launched a large canoe to bring us to Kakapo, a bay on the south side of the harbour, where there is a whaling establishment, and where several Europeans are living, who support themselves by supplying provisions to a number of ships, which annually resort to Cloudy Bay. We were welcomed to the house of Mr. Guard, one of the earliest adventurers in New Zealand, where he has been for twenty years.

The western shore of Port Underwood forms a number of diminutive coves. It is so rocky that access from one cove to the other, along the coast, is impossible. The largest bay, near the head of the harbour, is Robin Hood's Bay, where there is a native settlement. No European lives there. The next is Ocean Bay, with a large beach, and some extent of flat but shingly land. Here are two whaling establishments. The number of Europeans was thirty, and of natives about one hundred.

The next is Kakapo, or Guard's Bay. This is very small, and the hills surrounding it so high that the sun can be seen only for a short time. The number of Europeans is only five, and of natives about sixty, who man the boats, and live on very intimate terms with the Europeans. Mr. Guard was the first man who cleared this beach and settled on

it, and the natives came round him afterwards. Rauparaha's brother, Norua, is the chief of Kakapo. A daughter of Tupahi also lives here.

Next to Kakapo is Tom King's Bay, also the station of a whaling-party; another stands opposite to it, and is managed by an American.

The geological formation, which I have already mentioned, can be well observed on an island which lies nearly abreast of Kakapo. The direction of the clay-slate is here from north-north-west to south-south-east, with a south-west dip at an angle of less than forty-five degrees. In Kakapo the same slate is traversed by dikes of bluish Lydian stone, with veins of quartz. On the coast opposite to Kakapo the slate is harder, and of a black colour, but not fit for the purposes of roofing.

Whaling alone has attracted the Europeans to Cloudy Bay. The different bays look indeed like the *Golgotha* of the whale, so many remains of that animal are lying on the beach. But whaling is not carried on from the shore alone: ships anchoring during the season in Port Underwood engage with their boats in the pursuit; and the port is better adapted for the whale-ships than Te-awa-iti, as the anchorage is less distant from the entrance, and the rush of the tide not so strong as into the narrow southern entrance of Tory Channel. Besides, Port Underwood is ill adapted for any other purpose: not even the outer harbour, the only one yet visited, is a first-rate one, as the prevalent gales—those

from the south-west—blow directly into the entrance, and often drag the ships from their anchorage. The high and steep hills which enclose the place on all sides give it a gloomy appearance, the sun appearing late and setting early. The name of Cloudy Bay, given by Captain Cook, although he never entered this harbour, is very appropriate: it is now called Port Underwood. Rain must be frequent, from the mountainous and woody character of the country. I was here three times, always during heavy rains. A few whalers and traders found but a scanty subsistence even while whales were plentiful and provisions from the natives cheap; both these advantages have now ceased. The harbour, it is true, has the nearest connection with the level land at Wairao, and it is to the latter that it must look for any importance it may in future acquire. The road to that land from Port Underwood is even now passable, and has been driven over by cattle. A Mr. Wilton, from Sydney, attempted a farming establishment at Wairao, and drove cattle thither from Port Underwood. He lost his life through an accident, and I am not aware that any one has since renewed the attempt.

Cloudy Bay and Queen Charlotte's Sound are very rich in fish. Nowhere in New Zealand have I found them in such abundance. They were of the genera Scomber, Balistes, Serranus, Raius, Labrus. Mullets also were very plentiful. A fish was often caught which is nearly allied, even if it be not the

same, to one described by Cuvier under the name of Trigla papilionacea. The natives call it kumu kumu. It is of a bright orange-colour; its pectoral fins are large and membranous, and of an emerald-green, bordered with an azure margin. Near the tail is a spot of velvet black, dotted with white. This fish is one of the most beautiful known, and it always caused me pain to see it taken out of its element, and in expiring lose its vivid colours. Another most singular fish often took the bait: this was the Chimæra calorynchus, which is related to the shark tribe, and has a most singular fleshy proboscis. Its colours are very brilliant, of a silvery-white, or grey. It generally appears at night, at the surface of the water, preying upon the young of other tribes. The flesh is somewhat dry, and resembles that of the shark.

I returned from Cloudy Bay on the 19th of September, and at daybreak on the following day we left Te-awa-iti on the flood tide, and with a north-west wind. The southern entrance of Tory Channel is narrow, and requires a leading wind and a favourable tide, in which case the navigation is easy and safe. On leaving the channel the view opened on the Two Brothers, over the rocky coast of the Island of Arapaoa. To the southward appeared the different bights of the coast before the entrance into Port Underwood. We saw the whole of the coast towards Wairao and Cape Campbell, and at a distance towered the Snowy Mountains. To the north-

ward were the steep shores in the neighbourhood of Mana and Port Nicholson, which latter place is about thirty miles distant from the southern entrance of Tory Channel. At eight o'clock we sailed by the part of the shore of the northern island which is called Te-ra-witi (the rising sun). We beat up against the breeze, and entered the harbour of Port Nicholson. There is plenty of ship-room at the entrance, and the dangers which exist are all apparent. The soundings are between seventeen and eight and a half fathoms. After passing the inner heads a spacious basin appears. Several canoes came off, and in one of them was an old venerable-looking chief, Epuni, with his son. At three o'clock we anchored on the northern side of a large island called Matin, now Somes's Island, about a mile from the mainland.

CHAPTER III.

Port Nicholson.—Wellington.—Excursion into the Valley of the Eritonga.

We stayed in Port Nicholson until the 4th of October, during which time the agent of the New Zealand Company completed the purchase of that place. Nearly three years have elapsed since our first visit; and a spot scarcely known before that time, and rarely if ever visited by Europeans, has become the seat of a large settlement, with nearly 5000 inhabitants. Where a few hundred natives then lived in rude villages, fearful of their neighbours, but desirous of intercourse with Europeans, and just beginning to be initiated into the forms of Christian worship by a native missionary, there is now a town, with warehouses, wharfs, club-houses, horticultural and scientific societies, racecourses,—in short, with all the mechanism of a civilized and commercial community; at this very place, where I then enjoyed in all its fulness the wild aspect of nature, and where the inhabitants, wild and untamed, accorded well with their native scenery, there is now the restless European, spreading around all the advantages and disadvantages of civilization and trade. Although aware that I have long been

anticipated in the description of this place, I must beg leave to give a few remarks which I gleaned during this and subsequent visits.

Port Nicholson is situated in a foreland which, in its longest extent, has a north-east to south-west direction, and which is formed to the south-east by the deep indentation of Wairarapa, or Palliser Bay, and to the north-west by the bight of the coast in which Mana, or Table Island, is situated. The outermost point of this foreland is Cape Te-ra-witi. This is the narrowest point of Cook's Straits, the distance to the nearest land in the middle island being only thirty miles. In its geological formation this foreland is a continuation of the hills which I have described as forming the chief part of the land at the other side of Cook's Straits, and it can scarcely be doubted that formerly both islands were here connected. The sea having once broken this connection, a rush of the tide, which comes from the southward, and runs at the rate of five knots an hour during the spring-tides, took place through the opening. The winds prevailing in this part of Cook's Straits the greater part of the year are from the south and south-east, and often increase to heavy gales, augmenting the rush of water through the straits, and making considerable inroads on the coast. Port Nicholson was doubtless thus formed, and the general aspect of the foreland, in which the harbour is situated, bears decided proof of the wear and tear of the coasts. At the head of the harbour the hills

of which Cape Te-ra-witi is the outermost point, and those which form the eastern boundary, leave between them a triangular space, formed of alluvial land brought down by the river Eritonga, or Hutt. A sandy beach, two miles and a half in length, borders this alluvial flat, from which the water shoals to some distance. In consequence of its being opposite to the entrance of the harbour, a heavy surf is found here during southerly winds. The apex of this delta is about seven miles from the beach, where the hills approach each other and form the gorge of the river. At a distance of about forty miles a range of hills, which early in autumn are covered with snow, shuts in the view. These mountains—the Tararua range—run north and south, and are therefore best seen from off Entry Island, or Kapiti. They extend towards the centre of the northern island, and are connected, by the Rua Wahine range, with the group of the Ruapahu and Tongariro. To the westward of this range, that is, from the centre of the island towards Cape Egmont, the land is comparatively flat, with slight undulations, Mount Egmont excepted, which stands much isolated.

The hills which bound Port Nicholson to the westward, and terminate at Cape Te-ra-witi, and those which bound it to the eastward, and terminate at Baring's Heads, are branches of the Tararua range.

Their geological structure is argillaceous schist, interrupted, especially on the western shore, by

bulky and irregular dikes of red, black, or greenish Lydian stone. Sometimes the clay is more quartzose and granular. This latter I observed on the Tararua Mountains, where it forms a good stone for building purposes. There are also found other trappean rocks about twenty miles up the valley, and on the banks of the river Hutt.

Notwithstanding the very early formation of these schistous and trappean rocks, shocks of earthquakes are sometimes felt at Port Nicholson. They are generally very slight.[1]

[1] Several shocks were felt in May, 1840. "The first movement," says the Port Nicholson Gazette, of May 30, 1840, "took place at about twenty minutes to five o'clock on the morning of the 26th; the second, an hour later. The following night there was another slight shock, and after that several more, which, however, were so slight as to have been felt by few. The first shock was by far the severest and longest in duration; it was not, however, the cause of any mischief, though it alarmed some of the inhabitants. It appears to have been nearly equally felt all around Port Nicholson.

"We did not notice anything unusual in the state of the atmosphere, nor in the appearance of the sky or sea, before the earthquake; some persons, however, state they were struck by the remarkable appearance of the clouds in the direction of the Tararua range, and others by the stillness of the sea at night-time. We went out immediately after, or we might almost say during, the first shock, to observe if anything unusual would present itself to our attention, but all appeared as usual, and the morning was fine, clear, quiet, and cool.

"To some the motion appeared from west to east, and to others from north to south. The first shock appeared to us to undulate from both of these directions, commencing from north to south, and ending from west to east; and the second shock from north to south, and ending with a motion from east to west. Some persons declare they distinctly heard sounds which came from the north-west, like firing cannon; if so, it is not improbable it will be found

The best harbour for ships is opposite the embouchure of the river Hutt, and is formed by the curved peninsula of the western headland. Here they obtain good holding-ground, with great facilities for discharging their cargoes, and are protected from the prevailing winds, which are N.W. 200 days in the year, and during the remaining days S. and S.E. That the harbour is good and convenient is proved by the fact that more than 200 vessels have entered and cleared it in safety, although the entrance, without the assistance of charts, is somewhat difficult, and no care has been taken to erect a lighthouse. The boundary hills, both to the east and west of the basin of Port Nicholson, rise abruptly from the water's edge: but in that peninsular part where the town of Wellington has been founded, there is a strip of flat land at their base, about one-third of a mile broad, consisting of a soil composed of sand, shells, shingle, and vegetable earth, and extending to the western headland of the harbour,

that the volcano at Mount Egmont has again burst forth, or that the volcano in the interior has increased in its activity. We should like to learn whether this earthquake was felt in other parts of the island."

Mount Egmont, as we shall afterwards see, shows no signs of recent activity, and it is more probable that these shocks proceeded along the mountain-chain of the Ruawahine and Tararua from the Tongariro, which mountain and the country surrounding it are the very centre of modern igneous powers.

Earthquakes, indeed, are often felt in the middle island; the European settlers experienced them at Queen Charlotte's Sound and Te-awa-iti, and a rather severe shock was felt in Cloudy Bay on the 29th of August, 1839.

where the hills are low and undulating. At the town of Wellington there is consequently a long line of water-frontage, with deep water at a few yards from the shore.

The neck of land between the island of Mana and Port Nicholson consists of hills, with deep ravines, intersected by watercourses, where the natives have some plantations. Of similar configuration is the neck of land separating the port from Wairarapa, or Palliser Bay. At high-water the passage from Wellington to the head of the bay was impassable, but since I left Port Nicholson a road has been constructed, connecting the valley of the Hutt immediately with the town. A road has also been made across the neck of land to the Pararua, a river which discharges itself into Cook's Straits opposite the island of Mana.

Having on a subsequent occasion (August, 1840) explored the valley of the Eritonga, I will here give a description of that river. My intention was to have crossed the snowy mountains which are seen to the northward of Port Nicholson, and to have entered the valley of the Manawatu, which I was told by the natives approaches those mountains in its long and serpentine course, forming a fertile valley, and afterwards discharging itself into Cook's Straits. This I was unable to accomplish, from the difficulties presented by the heavy forest and underwood, although surveyors' lines had been cut for about twenty miles up the valley, from the necessity of

carrying with us all our provisions, but chiefly from the unfavourable season at which I undertook the journey, and in which I had to contend with pouring rains and heavy freshes in the river. Enough, however, was explored to convince me that, although the crowd of mountains around Port Nicholson was remarkable, and the land very thickly wooded, steady industry and perseverance would find a sufficient extent of available land for the support of a town, although connection with a larger agricultural district would be indispensable. Such a district I had already pointed out in the country to the westward of the river Wanganui, comprising the level and undulating land at the base of Mount Taranaki.

I started from Port Nicholson on the 30th of July, 1840. All my companions were Europeans, as I could not obtain the services of any natives. This, however, was of no consequence, as they knew the valley as little as myself, never having penetrated far for fear of the Nga-te-Kahohunu tribe, the former proprietors of the place, and their greatest enemies. The river Eritonga forms at its outlet a broad basin in the sandy downs of the coast, and is joined, not far from its mouth, by three tributaries, the Okatu, Emotu, and Waiwatu. During flood-tide it is easily entered by large boats, which can go up for about six miles, when the shallowness of the water, and the danger arising from the snags which are imbedded in its bottom, prevent their farther progress. I followed the lines which the surveyors had

undertaken to cut along the right bank of the river, and which soon approach the hills that bound the valley to the westward. Our road lay over flat alluvial land, covered to a breadth of about four miles from the sea-shore with a recent but thick growth of underwood. Amongst the trees was one which, on being pierced, yielded about half a wine-glass-full of a well-flavoured milk. I am unable to say whether this tree, of which I saw only two specimens in Port Nicholson, and those of a small size, belongs to the same family as the cow-tree of Guiana (Galactodendrum), of which Humboldt has given so graphic a description.

It having at that time been determined to place the town of Wellington on the banks of the river Hutt, I found many of the settlers busily occupied clearing the ground, although it was still very early in the morning. The first colonists at Port Nicholson were imbued with an excellent spirit of industry and enterprise; and it was only to be regretted that, from the land not being yet measured out, the colonists did not know whether they should be allowed to retain the spot which they might choose and begin to cultivate, and thus was wanting the principal stimulant for exerting themselves, and thereby fulfilling the first demand on a new colony, namely, of producing in the shortest possible time a sufficient supply for its own consumption.

Higher up the valley the alluvial land is covered with trees, of which the rimu and kahikatea pines

are especially remarkable for their size. Both belong to the genus Dacrydium. The former is one of the most beautiful trees imaginable, particularly when young, as at that time its branches bend gracefully downwards, like those of the weeping-willow. This is the pine from the branches of which Captain Cook made spruce-beer. Another tree common in this part of the valley is the pukatea, and is easily known by its trunk, which rapidly diminishes in diameter from the ground upwards. The leaves are thick, serrated, and of a glossy green, and it belongs to the laurel tribe. I am not aware that it has yet been described by any writer. Its wood is white, and resembles that of the beech-tree. The rata also is common (Metrosideros robusta). It is the king of the New Zealand trees, and has the hardest and most durable wood. In the evenings we always looked for this tree, in order to get some of its pealing and friable bark, the lower layers of which are found in a dry state, and were used by us for tinder. These larger trees spread over a number of smaller ones of various descriptions.

About seven miles from the beach the hills which enclose the Hutt approach near each other, the river keeping close under the western range, which slopes with a steep declivity to its bed. The sides of the hills are here strewed over with sharp-edged fragments of clay-slate, intermixed with vegetable earth, which nourishes a vigorous vegetation, but no species

predominates sufficiently to give a distinct character to the forest.

Up to this place the river has an average depth of from two to three feet. In rainy weather it often swells suddenly, from the narrowness of the valley through which it flows, and from the large supply rapidly brought down from the hills by a number of lateral tributaries. The banks near its outlet are quickly overflowed; and these sudden inundations, after a few hours' rain, have several times taken the settlers lower down by surprise. The river at present meets with many impediments in its course from snags, and is capable of great improvement in this respect.

In the gorge, which, as I have stated, forms the apex of the alluvial triangle of the Eritonga, the hills were almost perpendicular; and, in order to avoid a tedious and fatiguing road, we got into a small punt, which had been brought up thus far for the use of the surveyors. We landed again about half a mile higher up. This part of the river was truly picturesque. The right bank was steep and abrupt, nevertheless it was covered with trees overhanging the river. That beautiful bird the large-crested cormorant[1] is found here in great numbers among the higher branches of the trees. It feeds upon eels and a small kind of fish with which the Eritonga abounds. They are social birds, and many of their

[1] Phalacrocorax punctatus.

nests are seen together on a tree, which is always sure to be the one most difficult of access. The unbroken stillness of a New Zealand forest is remarkable: the cormorants themselves have something solemn in their aspect, and are called by the New Zealanders kauwau, or the preachers. Sometimes, indeed, the mako-mako[1] pours forth at long intervals its melodious notes; or perhaps a hawk[2] is seen watching the movements of a smaller bird; or the neat fan-tail flycatcher busy in the lower branches. The vegetation of New Zealand is nourished by the constant moisture, and, although remarkable for the freshness of its verdure, there is not much variety, considering the extent of the island. But of birds and animals the number of species is still more limited; in fact, fewer varieties are found in New Zealand, in comparison to its area, than in any other country.

We encamped for the night on a sandbank, where we found plenty of dry drift-wood. From this place, where the valley widens a little, the river follows the western hills, and at its freshes overflows the left shore, which was covered with the shrublike veronica. Near the eastern hills the dark-green foliage and reddish bark of the totara pine impressed the landscape at once with a distinct feature.

The following day we crossed and recrossed the river six times. Its depth is very unequal, and

[1] Philedon Dumerilii. [2] Falco brunnea.

often came up to our middle. It is very rapid in its course, and, although in many places not more than thirty yards in breadth, its broad bed, strewed over with large boulders of basaltic rock, proves that this child of the mountains does not always confine itself within such narrow limits. At this place its course is greatly obstructed by totara-trees of immense dimensions: two or three are often piled one above the other, showing how high the river occasionally rises. About twenty-five miles from its outlet, on the right shore, was a steep rocky bluff, of a hard trap-rock, over which fell two cascades.

Higher up, the banks of the river show by their vertical section the manner in which this valley has been formed. An argillaceous slate is overlaid by a layer of boulders and pebbles, of trappean formation, from ten to twelve feet in thickness. This formation extends to the foot of the mountains, and proves that the level of the water in the Eritonga was formerly much higher than it now is. This is especially seen a little higher up. On the slopes of the lateral hills platforms are found, now on the right, now on the left side of the river, according to its windings, their elevation on each side being the same. They extend a square mile or more in area, and are strewed over with boulders and water-worn pebbles.

I may here observe that the coast near Palliser Bay has a terraced appearance, corresponding probably in level with that just described, for the origin

of which we must look not in the subsidence of the waters, but in a rise of the land after an interval of repose. These terraces, both on the banks of the river and on the sea-coast, are far too elevated for the highest floods or tides ever to have reached them.

Some of the most valuable land in this part of the valley is found on these platforms: a thick mould, or clayey soil, covers the boulders. The forest is very open, and in some parts consists almost entirely of tawai-trees, and in others of the totara. The totara pine is a very stately tree: its stem is generally five or six feet in diameter, and is without branches for about sixty feet above the ground. The branches spring from the stem at an acute angle, and form several *crowns* at some distance from each other. The bark is thin, of a reddish colour, and generally peals off in longitudinal stripes. Its leaves are lanceolate and short: they are of a dark-green colour on the upper surface, and of a sea-green on the lower. It grows in this valley chiefly in rich alluvial land, which is exposed at times to inundations, but it is not found on the lowest banks. In other parts of the island, however, I have seen the totara also growing on hills, and it was this pine that I found occupying the highest elevation on Mount Egmont, although there it had diminished much in size, and had become stunted. To the southward of Mercury Bay, on the eastern coast, and of Kawia, on the western, the totara is the only tree used by

the natives for constructing their canoes. The wood is very heavy and tough, and its durability is not impaired, but rather increased, by its lying in the water. Trees which had been buried in the beds of rivers, apparently for ages, looked as fresh and uninjured as if they had been recently felled. Of the different kinds of timber found in New Zealand totara seems most to resemble our oak in appearance and quality, and the forest in the valley of the Hutt will be of great value to the settlement at Port Nicholson, especially as the trees can easily be floated down the river during freshes. There are harder woods in New Zealand than the totara, such as those of the rata and pohutukana (gen. Metrosideros), and of the kahikatoa (Leptospermum), a moderate-sized tree, covering the lowest banks on the river Hutt; but these woods are too hard, and can only be worked with great labour and expense.

On the fourth day I joined the party of Mr. Deans, which was employed cutting a line through the forest that runs on the slope of the western hills. Heavy showers of rain and freshes in the river detained us in Mr. Dean's tent for two days: these we passed as well as we could in shooting pigeons, which at this season were feeding in great numbers upon the aromatic berry of the mai pine or the seeds and leaves of the kahikatoa.

About thirty miles up the river, on a plateau on the western hills, I saw for the first time traces of the natives having visited this district before us. At

this spot the trees were half burnt and decaying, some lying one over the other in disorder, whilst the white and bleak stems of others were still standing upright. High fern had sprung up, as is always the case when a spot has been cleared for the purpose of cultivation. On the opposite bank of the river a circular stripe was pealed off from the bark of totara-trees, a general custom with the natives when they mark and "tapu" a tree for future use. But in this case they seem to have been prevented from felling the trees. These marks were doubtless made while the Nga-te-Kahohunu tribe still possessed Port Nicholson, before they retired through the valley to the eastward, and to Palliser Bay, where they lived for some time in the dark recesses of the forest, continually issuing from their hiding-places to harass their enemies. The present inhabitants of Port Nicholson, whose original dwelling-place was Taranaki, know nothing of the valley of the Hutt, nor are they aware of the existence of the totara-forest, their fears having always confined them to the sea-coast.

This plateau is situated above a perpendicular cliff of about thirty feet in height. A creek coming from the westward discharges at this point a considerable body of water into the Eritonga.

During the time we were detained here the wind was from the south-east; the thermometer kept a daily range from 39° to 50° Fahrenheit, and the air was saturated with humidity. The only place

where we could enjoy the sun was close to the river's edge, or upon a tree turned across it, as the whole place was covered with bush and forest. Heavy dews fell during the night, and in spite of the shelter of the tent our blankets were always wet through in the morning.

Although the weather continued unfavourable, we were obliged to resume our route on the morning of August 4th, as our supplies were rapidly decreasing. Mr. Deans and two of his men joined my party, making us eight in number. We forded the river to its left shore, and crossed and recrossed it that day sixteen times. In one part the river is shut in by elevated banks about eighteen feet high, from which the land runs in flats towards the eastern and western hills; here we walked for about a mile in the bed of the river. The valley is about two miles and a half broad, and the land of a very good quality. The forest is again formed of one sort of tree, tawai, and is open and park-like. A soft carpet of moss covers the ground in many places. One species of moss, in the shape of a diminutive fern-tree, was very beautiful. The plants of the lower scale of vegetation, as ferns and mosses, were plentiful—the moisture which characterises the winter in New Zealand being particularly favourable to their growth.

The bed of the river at this point is crossed by bars of slaty rock, which strike from north-west to south-east, and dip in some places with a very

acute angle to the south-west, and at others stand nearly perpendicular. The general breadth of the river had not diminished, but in many places it was very shallow.

In the afternoon we halted at a place where two streams joined to form the Eritonga, one coming from north by west, the other from east by north. At their junction they appeared to me to be of the same size, but as we advanced I convinced myself that the branch from the eastward formed the principal source.

During the 5th we had heavy showers of rain, hail, and snow; the river was swollen and could not be forded. We were, therefore, obliged to halt a day, and on the 6th we followed the left stream, where some flat land extended towards the hills. Finding that this did not extend far, and that the hills again descended close to the river's edge, I ascended one of them with Messrs. Deans and Eckford, to obtain a view of the surrounding country; but on reaching the summit, through supplejack and underwood, we had the mortification to find that trees obstructed the view in every direction. It moreover began to rain, and a thick fog enveloped everything in darkness.

On the weather's clearing up somewhat, we climbed to the top of a tree, and thence obtained a view of the snow-covered hills of the Tararua; that which appeared the highest, and for which I resolved to steer, bore north-east. When we came

down the hill, the day was nearly gone, and we returned to our old shed at the junction of the streams. Here we were again detained for a day, as the river was still deep and rapid, and some of our party could not swim. The freshes, however, decreased rapidly during the night of the 7th; we therefore forded the eastern branch, and followed its course through a district covered with tawai-forest. The river, which is here confined between high shores, preserves the same breadth, but is of greater depth. On the opposite shore, which likewise forms a plateau, I observed the rimu pine in great abundance. The section of the cliffy banks shows the same formation as that I have already described, with boulders and pebbles above; but the slate below has assumed a blue colour. We walked for nearly four miles on the flat, which is about a mile in breadth, but were stopped by a sudden curve of the river to the westward. On its right shore the hills were again precipitous to the height of several hundred feet; the force of the current in its winding course has undermined them, occasioning frequent slips. The left shore is low, and bears sufficient marks of its being very often overflowed.

I at first thought that the two branches which I have mentioned as forming the Eritonga were branches of one and the same stream, having the flat which we had passed as an island between them; but this is not the case; the left arm either rises in or flows through some swamp, as its waters

had the brown colour peculiar to streams passing through swampy ground. I considered that we were now about fifty miles from the sea. In the bed of the river we had the satisfaction of seeing the Tararua range very near to us. A creek here joined the river from the eastward; it appeared to come straight from the mountains, and I therefore determined to follow it. For this purpose we had to cross the Eritonga, which we could not have managed had not a newly-uprooted mai, which had fallen across it, formed a natural bridge. After scrambling for two hours through dense underwood and a soft alluvial soil, we reached the creek, which we crossed, and on the banks of which we encamped.

On our route this day we had seen traces of natives;—a footpath coming from the eastward, although marked only by the half-broken branches of shrubs (a common mode among the natives of pointing out a path through the bush), had been trodden about a year ago, if the appearance of the broken twigs did not deceive me. We had also sure indications that wild pigs were common in the forest. On the sandy banks of the Eritonga we observed the footmarks of dogs and cats, but higher up those of the pigs only were discernible; and from the direction of their paths, which are as well marked as those of men, although more winding, I concluded that they must have found their way to this place not from Port Nicholson, but from Pal-

liser Bay, or some other place on the east coast. The introduction of the carnivorous dog and cat into New Zealand has had a curious and fatal effect on the feathered races. On the breaking up of the tribes these animals were dispersed into the forest, which afforded nothing for their support but the birds, whose number has greatly decreased in consequence, as can be clearly proved, especially as some —such as the rails—possess very limited powers of flight, and one class, the apterix, cannot fly at all, for the very sufficient reason that it has no wings. We should have been very glad to have fallen in with some natives, or with some of the quadruped rovers of the forest; the latter would have given us the means of prolonging our tour, and the former might have shown us the road to some land unknown. We, however, saw neither man nor beast; and although the natives from the east coast may sometimes wander in this direction from Cook's Straits; and although it may be true, as I have been told by a native of Hauriri, or Hawke's Bay, that from a range of hills near that bay may be seen the fires of Rauparaha in Kapiti; yet, from all I have seen in New Zealand, I am convinced that the formidable pictures of bush-natives which have been drawn are purely the result of imagination. The natives in general are much too civilised and social, and know their own interests too well, to live in a gloomy and inhospitable forest. It is true, indeed, that excursions for surprising and robbing neigh-

bouring tribes are, or rather were, frequent; and in that manner the natives become acquainted with the most secret recesses of the country: but on such occasions they always return to their settlements.

We had now arrived at the foot of some low hills, which formed the fore-hills of the Tararua range, and were covered with fern, manuka, and the burnt remains of a forest. They were of a gentle slope, with a clayey soil. In the evening we had a fine view from them of a range of snowy hills: we therefore descended on the following day into a deep valley, which separated us from this range. In the valley flowed the creek which I have before mentioned. We afterwards ascended a ridge which was very open, and covered with high and straight trees. Thus far the weather had favoured us, but it now again became bad, and thick clouds reposed upon the heights. We managed, however, to reach the summit towards evening. The cold now became very sensible; the thermometer stood at 37° Fahrenheit, and in the ravines and on the branches of trees there was plenty of snow. I could by no means determine where I actually was, as we were unable to distinguish the objects many yards from us; and besides, the whole range was so covered with high trees as to have prevented us from having any view had the weather been clear. It froze in the night, and more snow fell; and when I awoke in the morning the thermometer stood at the freezing-point.

The ridge which we had yesterday ascended branches off in a westerly direction from the main range, which runs nearly north and south.

We this day followed the range to the northward, in which direction I had seen a pyramidical elevation towering somewhat higher than the rest. Large trees which had been blown down obstructed our path, a proof of the heavy gales which sometimes rage here. As we ascended we found the snow in greater quantity. The weather was a little clearer, and on reaching the highest summit I climbed up a tree and saw somewhat of the surrounding country. The ridge on which we were ran to the southward; its limits were enveloped in clouds. In the direction of west-by-south I distinguished Kapiti, or Entry Island, about seventy miles distant. Several ranges of hills separated us from the sea. The hills sweep round, and terminate, as it appeared to me, in a wooded promontory at Otaki, twenty miles to the northward of Kapiti. To the eastward I saw another range of hills running nearly parallel to that on which we were, and separated from it by a deep and narrow chasm. In looking into the valley of the Eritonga I saw that the whole was covered with wood; only a small stripe of its waters was visible. Port Nicholson was hid from our view by the eastern hills. The land in the upper part of the valley was composed of low hills, and I distinguished a swamp about three miles in circumference. The character of the

whole was in the highest degree mountainous, and some time must pass before all the valleys, gorges, and ravines can be explored, or rendered accessible. Of the practicability of joining the valley of the Hutt by means of a road with Hawke's Bay and the valley of the Manawatu, I have no doubt; but it can only be done when the colony is in a much more advanced state, and when labour is more abundant and cheaper.

Our stock of provisions was so much exhausted, that we could not safely pursue our route in the hope of finding a way out of this wilderness; I therefore determined to return by the road by which we had come. This we accomplished with some variations, and arrived at Port Nicholson on the 14th of August, after an absence of sixteen days.

From the hills surrounding Port Nicholson I added to my collection a very curious bird, which before was only imperfectly known. This is the bird whose white-tipped tail-feathers are so highly prized by the natives, and are used as ornaments for the head in all parts of the island. But the bird, according to the accounts of the natives, with which my own observation agrees, has a very narrow geographical locality, as it is only found in the deepest recesses of the primeval forest covering the hills around Port Nicholson, and between the latter place and Hawke's Bay. It is called by the natives Uia, and was received into the ornithological system under the name of Neomorpha Gouldii. It

has been depicted by Mr. Gould, in Part III. of his very splendid work, 'The Birds of Australia,' from specimens which I sent to him. The great difference which exists in the shape of the bill in the male and female birds induced Mr. Gould formerly to regard them as two distinct species, to which he gave the names Neomorpha crassirostris and acutirostris; but it is now well known that there exists a whole tribe of birds showing the same generic difference. This bird is of the size of a magpie: its plumage is of a dark glossy black, inclining to a green metallic lustre. The ends of its tail-feathers are tipped with white for about three-quarters of an inch; the bill is white, rather darker at its base, where it has two wattles of a rich orange colour—a peculiarity of structure which several birds of New Zealand possess.

The male bird has a short, straight, and strong beak, but that of the female is much longer, and forms a segment of a circle.

Accompanied by a native belonging to the tribe of the former inhabitants of Port Nicholson, the Nga-te-Kahohunu, and now a slave, the only person I was told who understood the art of decoying uias, I set out for the hills, and, after a long day's walk, had the pleasure of seeing that the continued loud and shrill whistling of my guide, *uia, uia, uia,* in imitation of the note of the birds, had attracted four, which alighted on the lower branches of the trees near him. They came silently and with a

brisk flight. I fired and killed two or three of them, but generally they come so near that the natives kill them with sticks, in order not to injure the precious tail-feathers.

In the stomachs of these birds I found fruits of the Elaeocarpus hinau, and also coleopterous and dipterous insects. Mr. Gould's drawing of this bird is most characteristic; but the tree on which he has placed it, the Corynocarpus lævigata, is not found in the forest, which is the only habitation of this bird, but grows in open places near the coast.

The narrow geographical range of this bird, which I have already mentioned, is exceedingly curious; its extinction, for that reason, may not perhaps be very far distant, unless the bird is to be found in the middle island, which the natives, however, deny to be the case.

The natives in Port Nicholson belong to the large nation of the Nga-te-awa (river people), and are about 1500 in number. They are subdivided into several smaller tribes, living in the different coves of the harbour. The present natives are not the ancient inhabitants of the place, but seized it from a tribe called the Nga-te-Kahohunu, after they had themselves been driven from their ancient homes at the foot of Mount Egmont. They received us at our arrival with every mark of friendship, listened to and discussed the subject of our coming among them with great discretion and good judgment, and agreed at last to sell the land; not, however, without

a lively opposition having been offered by a chief, Puakawa (Bitter Sowthistle), who, with simple and solemn eloquence, warned his people of the cupidity of Europeans, pointed to the fate of the Tasmanians and Australians, and pictured a similar fate as awaiting his own people: the Europeans promised brotherhood to them, he said, but they were men who spoke with the lips only (tangata ngutu kau). This chief, however, was outvoted; partly through the impression which our trade had made on the rest,—partly, I believe, by a higher motive, the desire of acquiring civilization, protection, and instruction from a European colony. Poor Puakawa! During my second stay at Port Nicholson his mutilated body was found in a field not far from his own village; his head had been cut off and his heart taken away. Some of the Nga-te-Kahohunu, mindful of the injuries they had received, and actuated by feelings of revenge and envy, which had been again called forth by the recent sale of Port Nicholson, had sallied from the hilly forest, and had treacherously killed the chief, who, although at first opposing the settlement of the Europeans, had ever afterwards been their sincere friend. About forty men penetrated into the woods to trace the murderers, but they did not succeed in overtaking them, although absent for a fortnight. On their return a great many speeches were made, and it was interesting to see the orators strutting with long strides and lively gesticulations, showing how nature led them to employ all those

modes of eloquence which with us are only attained by study. One tribe at Port Nicholson had refused to accompany the excursion; and on the return of the party I had an opportunity of observing the exercise of that feeble authority which, amongst barbarous nations, is possessed by one tribe over another. Those who had marched to revenge the death of the chief went to the village of the opposite party, many of whom had become Christians, took away their pigs and provisions, and feasted upon the produce of their land. Being in the minority, they could offer no resistance.

The most influential and active chiefs in Port Nicholson were E Puni, a man of a very mild and graceful disposition, and Ware Pouri, his nephew, who was of a noisy and boisterous character. These two conducted the sale of the territory for the rest; but they had to consult the wishes of a very aged man, Matangi, who, with white hair and beard, but with a frame still erect and powerful, formed a link between the warriors and cannibals of former times and the present generation, who, emerging from barbarism, were beginning to turn their minds to peaceful pursuits, and to embrace the tenets of Christianity. Matangi had been left heir to Port Nicholson by two tribes, also belonging to the Nga-te-awa nation, who had been the most powerful, after the land had been wrested from the Nga-te-Kahohunu, but had emigrated to the Chatham Islands. Some few individuals of these tribes who are called the

Nga-te-Motunga and Nga-te-Tama, still remained at Port Nicholson.

Up to the present time, nearly three years since the purchase, there has not been a single serious misunderstanding between the natives and the European settlers; and my hope that, by a prudent management and forbearing treatment, the evils would be avoided which have everywhere else followed in the train of English colonization, has not as yet been disappointed: nor is it unworthy of remark, that the tribes at Port Nicholson had had very little intercourse with Europeans before our arrival at that place, their only visitor having been a missionary from the Bay of Islands a short time before, for the purpose of preventing the natives from concluding a treaty with the Company's agent, or, rather, to secure the best parts of the land, not indeed for the church, but merely for himself.

We left Port Nicholson for Cloudy Bay on October the 4th, with a light northerly wind. When we came outside the harbour we had squalls, and afterwards a fine breeze from the north-west, which was soon succeeded by a calm; but a fresh breeze springing up, we anchored in the afternoon at the entrance to Cloudy Bay. We found there the barque Honduras, of London, which had come from a whaling establishment at Otago, on the eastern coast of the middle island, and was completing her cargo at Cloudy Bay. We stayed here until the 13th of October, and then sailed for Te-awa-iti, in order

to take in Mr. Barret, an old trader and whaler, who was to accompany us to Taranaki. From the entrance of Cloudy Bay to the south entrance of Tory Channel the distance is about twenty miles. The coast between these points is very bold, from 200 to 300 feet high, and the sea breaks against the weather-worn rocks with tremendous violence. The aspect of the coast is dreary and barren, the formation being a yellow schistous clay. In the whaling season the boats, running out from Te-awa-iti and Cloudy Bay harbours, are sometimes surprised by a gale, and obliged to run ashore, where they find scanty shelter in a small inlet called Barret's, or in another called Jackson's Boat Harbour, where frequently they are windbound for several days, and suffer much from want of provisions, their only resource being a few shell-fish, and some penguins which inhabit the hollows of the rocks. All the year round whale-boats may be seen running to and fro between Cloudy Bay and Te-awa-iti, Entry Island and Port Nicholson, and other parts of the coast, trading for provisions or cruising for whales. In calm weather the native ventures out in his war canoe, now, happily, seldom bent on warlike enterprises, but on peaceful visits to his friends and relations. As the prominent points of this coast are therefore well known to whalers, they have given names to all, which I shall adopt in concisely describing them. At a subsequent period I had a run in a whale-boat from Te-awa-iti to Cloudy Bay on a

medical visit, and had a good opportunity for inspecting the coast. A ship must keep clear of the land on account of some sunken rocks. After leaving Port Underwood we may pass in a boat between the northern head of the harbour and an irregular mass of rocks called the Coombe Rocks. About two miles from this point the shore forms a small bight, called Raumoa, or Fighting Bay, where at all times the tide produces a heavy swell. This place is of some renown in the history of Cook's Straits. When Rauparaha and the Nga-te-awa tribes had, after a sanguinary contest, driven away from these shores the Ngaheitao, the latter, who had settled on the eastern shore of the middle island, often returned in hostile parties to revenge the loss of their country. In one of these excursions, Tairoa, the chief of the Ngaheitao, with many of his followers, had been enclosed by the canoes of the enemy in this bight, from which there is no retreat inland. He saw nothing but certain death before him; but Rauparaha, the leader of his opponents, deferred the attack on account of a bad dream; a fog came on in the morning, and Tairoa made his escape, to the great disappointment of his enemies.

The next shallow bight of the coast is called Barret's Boat Harbour. Although boats must be hauled up over fearful rocks, this place has often given shelter to whale-boats in distress. From this point a difficult path leads into Tory Channel opposite to Te-awa-iti. Run-under Point is a rocky promontory half way between Tory Channel and

Cloudy Bay: thence the coast sweeps round in a large curve, forming Island Bay, so called from a small rocky isle near the southern shore, called Glasgow Island, from the name of a brig which rode out a heavy gale there. A furious tide sets into this bay, agitating the water even in calm weather.

Jackson's Boat Harbour, the next inlet between the rocks, affords, if possible, less shelter than Barret's Bight.

Before reaching the southern head of Tory Channel we pass Lucky Bay, which is of a similar aspect. The southern head of the entrance to Tory Channel forms a promontory, and is remarkable for the broken appearance of the rocks of which it consists. Through some excavations the waves rush from Cook's Straits into this channel.

When we were off the mouth of the channel we had a moderate south-east wind, and waited for the ebb-tide. As the tide sets into this narrow entrance with great force and vĕlocity, it must always be taken into consideration in running a vessel into the channel. The Honduras had come in the day before, during a calm, with the flood-tide, and two boats towing ahead, yet she struck on a rock off the northern head and became leaky. A pilot is very necessary, and generally one will come off from Te-awa-iti on a gun being fired outside the head.

Ten or twelve years ago the southern headland of Tory Channel was the scene of a sanguinary contest between the original natives of the channel,

the Nga-te-Kahohunu, the same who originally inhabited Port Nicholson, and the tribes of the Nga-te-awa. Rauparaha, at the head of the latter people, earned here inglorious laurels by shutting up his opponents on a narrow tongue of land, and then exterminating them.

The next destination of the Tory was Kapiti, or Entry Island, in Cook's Straits, and, leaving Te-awa-iti for that place on the 15th of October, we were towed by two boats round the northern headland of the channel. The coast of the island of Arapaoa to Cape Komaru, the eastern headland of Queen Charlotte's Sound, runs nearly in a straight line, and is extremely steep, on which account many slips have taken place. It is scarcely possible to find a more iron-bound shore. At four o'clock in the afternoon Cape Komaru bore N. W. by N. ½ N.; the island of Kapiti, N.N.E. ½ E.; the island of Mana, N.E. by E.; Cape Terawiti (the Rising Sun), S.E. by S. ½ S.; Point Jackson, W.N.W.

During the night the breeze fell, and we were beating about between Mana and the Two Brothers. At three o'clock on the following day we anchored between Kapiti and the mainland, to the northward of a small rocky island called Tokomapura, or Evans's Island, which is inhabited by an English whaling-party. A little to the eastward of the southern end of Kapiti are two other small islands: the outermost is called Tauramoria, or Rauparaha's Island, from its being the usual place of abode of

that chief; it is sometimes called Mayhew's Island, after an American who has a whaling-party there. The innermost island is smaller, and is called Motu Narara; it is separated from the southern end of Kapiti by a narrow channel, which, however, is deep enough for small vessels. This island is also called Hiko's Island, on account of this chief's residing there. On this island also there is a whaling-party of Americans. As soon as we had anchored, a boat with whalers came off from Evans's Island, as well as a canoe manned by natives. We learnt from them that a battle had been fought in the morning on the sandy beach of the mainland, from which we were about three miles distant, between people of the Nga-te-awa tribe, who have there a large fortified village called Waikanahi, and another tribe called the Nga-te-raukaua, who several years ago came from the interior, and settled on the shores of Cook's Straits. They have a village at Otaki, about fifteen miles to the northward of Waikanahi. We heard that many had been killed and wounded in the battle; that the Nga-te-raukaua had been defeated, and had retreated. My duties as a medical man called me ashore, but the roughness of the sea prevented me from landing. Rauparaha sent a message, requesting Colonel Wakefield to come to him on Evans's Island, as he did not dare to visit our ship, for fear the natives we had on board might prove to be his enemies. We went on shore in the afternoon, and found Rauparaha sitting on the

ground, with his wife Etope, wrapped up in mats and blankets, and painted with red ochre. He is between fifty and sixty years old, with remarkably Jewish features, an aquiline nose, and a cunning physiognomy. His manner was very restless; he was rather sparing of his words, and seemed much depressed at the issue of the battle. He was very generally considered to have been the instigator of this contest, and the secret supporter of the Nga-te-raukaua. However, he denied the charge, and said he wished for peace. There seemed, however, to be no reason to doubt the truth of the accusation, as he bears an old hatred to the Nga-te-awa, although belonging to the same tribe; not, however, to that clan of it which was engaged in this fray. At all events, Rauparaha seemed in this case to have played the dangerous game of keeping on good terms with both parties. He had gone out on the morning of the battle in his canoe towards Waikanahi to await the issue, and, perhaps, to partake of the spoil; but he returned when he saw that the Nga-te-awa defended themselves manfully against the superior force of the Nga-te-raukaua. Rauparaha is related to the latter, through his present wife; but many others of his clan, amongst them E Hiko and Rangihiro, are more closely connected with the Nga-te-awa, and are unwilling to join Rauparaha in his enmity against them. On the morning of the affray Hiko had been sent for to prevent the battle. This chief is, by his father Tupahi (who visited

England), related to the Nga-te-raukaua, and by his wife to the other tribes of the Nga-te-awa, and, from his relationship to both, is always chosen as peacemaker, for which office, moreover, he is well qualified by personal inclination and talent. In this case, however, he did not succeed, and soon returned to his own island.

Such is man in his barbarous state! Though endowed with many good qualities, his charities are exclusively confined to his own tribe, which is, in fact, composed of his blood relations. His neighbours, inhabiting the same land and speaking the same language with himself, he generally regards as his natural enemies.

Rauparaha soon left Evans's Island, in order to go to his own : he promised to come to the ship in the morning, after we had succeeded in quieting his fears as to the natives we had on board.

The following morning I went to Waikanahi. The spot where the affray had taken place presented a mournful sight: sixteen of the tribe had been killed in the battle, and many severely wounded. I was almost the whole day occupied with the latter, who submitted with great fortitude to the operations which I found necessary. Only one man, whose leg was smashed to pieces, preferred death to amputation. In bearing pain the New Zealander is certainly not inferior to a European, although he does not show that stoical indifference to suffering so highly valued by the Indians of America.

At our arrival on the beach we were welcomed with a salute of musketry, which continued until we entered the fencings of the pa.

All the people of the village were assembled; and though grief was expressed in every face, they received us with the greatest kindness and attention, and we were obliged to shake hands with everybody. They regarded us as friends and allies, for we had brought with us from Te-awa-iti some of their relations; and when they saw the medical men of our party giving assistance to the wounded, their confidence and gratitude were unbounded. Some of the women gave themselves up to violent expressions of grief, cutting their faces, arms, and legs, with broken muscle-shells, and inflicting deep gashes, from which the blood flowed profusely. We had brought with us E Patu, the son of a chief in East Bay, whose uncle had been killed in the battle. We found the widow standing on the roof of a hut, deploring in a low strain the loss of her husband. When E Patu approached she threw herself upon the ground, and, lying at his feet, related to him, in a funeral song, how great had been their happiness, how flourishing were their plantations, until the Nga-te-raukaua had destroyed their peace and bereft her of her husband. During this time E Patu stood before her, convulsively throwing his arms backwards and forwards, and joining in her lamentations.

An old woman, bent down under the burden of many years, had her arms and face frightfully cut;

she was painted with red kokowai, with a wreath of leaves round her head, and gesticulated and sang in a similar manner.

In this place there were no wounded, they had been carried to the principal and most fortified pa, which lies a little to the northward. This latter village was very large; it stood on a sand-hill, and was well fenced in, and the houses were neatly constructed. Everything was kept clean and in good order, and in this respect it surpassed many villages in Europe. The population seemed to be numerous, and I estimated it, together with that of the first-mentioned village, and a third, about a mile higher up, to amount, on the whole, to 700 souls. Several native missionaries, some of them liberated Nga-te-awa slaves, live here; and the natives had built a large house, neatly lined with a firm and tall reed, for their church and meeting-house. At the time of our visit they were expecting the arrival of a missionary of the Church of England from the Bay of Islands, who purposed living amongst them.

The medical aid which they had given to their wounded was confined to binding the broken limbs with splints made of the bark of a pine, or of the strongest part of the flax-leaves, and carefully protecting the wounds from external injury by means of hoops. Some of these bandages had been very well applied.

I went to the beach on the following day to attend my wounded patients, and to visit the scene

of battle. This was at the third village, and many traces of the strife were visible; trenches were dug in the sand of the beach, the fences of the village had been thrown down, and the houses were devastated. I heard the following particulars relative to the cause and commencement of the contest:—Several years ago the Nga-te-raukaua came from the interior, and formed a settlement on the sea-shore. The whole coast from Taranaki to Port Nicholson is a weather-beaten lee shore, and the only place where large ships can with safety anchor is the roadstead of Kapiti. Not satisfied with a settlement which they had formed at Otaki, they wanted to come nearer to this place of anchorage, for the advantage of trading, and their aim, during several years, has been to drive the Nga-te-awa from Waikanahi, which is opposite Kapiti.

It seems that the attack was concerted a few weeks ago at some funeral festivities celebrated in the island of Mana, in honour of Waitohi, a very old woman, who had enjoyed great renown as a prophetess amongst the different tribes. She was a relation of Rauparaha, and mother of Rangi-haiata, another Nga-te-awa chief. At these festivities Nga-te-raukaua and Nga-te-awa had assembled together and committed some excesses by killing several sheep belonging to a European, for the sake of the wool, which is in great request for interweaving in their mats. These festivals lasted several weeks, and during that time it was said Rauparaha con-

certed with the Nga-te-raukaua to make the attack, promising them his aid. On their return to Otaki they passed Waikanahi: the Nga-te-awa expected an attack; however, they passed quietly, but returned shortly afterwards. Early before daybreak they surrounded the village, and one of their number, entering a hut, asked a boy for a light. No New Zealander travels so early in the morning with friendly intentions, and the boy, knowing him to be one of their enemies, fired at him, and roused the tribe. The women escaped to the other village, to obtain aid, and the conflict began. The aggressors were defeated, and lost sixty men, amongst whom were several chiefs.

The Nga-te-awa buried their own dead; and the improved state of this tribe was shown by the fact that, instead of feasting on the dead bodies of their enemies, they buried them, depositing them in one common grave, together with their muskets, powder, mats, &c., a generosity and good feeling as unusual as it was honourable to their character. The grave of their enemies they enclosed, and made it "tapu."

I saw in Kapiti some people of the Nga-te-raukaua tribe, who had intermarried with the Nga-te-awa, and lived there; for it is a general custom that the husband resides with his wife among her own people. The country of the former tribe abounds with excellent flax, and they use it chiefly in the manufacture of the fine mats, called Kaitaka mats, which form the principal presents amongst them-

selves, and are found all over New Zealand. The fibres of the Phormium tenax take the dye excellently; and into the borders of these mats figures are woven, of thread dyed black and red, which very much resemble the figures in the ancient Mexican decorations, and are of a very firm texture. There is much intercourse between the European settlers at Kapiti and the natives at Otaki, the principal settlement of the Nga-te-raukaua, a trade being carried on between them in pigs and potatoes: and I must repeat my assertion that the hatred of the New Zealander is never directed against the white man, who may travel where he likes, and is never molested unless his own misconduct give rise to a quarrel.

CHAPTER IV.

Kapiti, or Entry Island.—Mana, or Table Island.

KAPITI—the "Entry Island" of Captain Cook—stretches from north to south in an irregular and somewhat oval shape. It consists of a ridge of hills, rising in some places to the height of 600 feet above the level of the sea, with some of its peaks of a pyramidical form. These hills descend abruptly to the westward and eastward, forming a rocky and nearly inaccessible shore throughout the greater part of its extent; they are intersected by deep ravines, through which small rivulets descend towards the sea-shore. At the southern extremity the hills are more undulating, and their ascent not so steep; and here the natives have their plantations. At the north-east end of the island the rock has been wasted and broken by the violence of the waves; and its débris, mixed with sand, vegetable mould, and pebbles of pumice-stone, of different colours, brought down by the Wanganui river from the active volcano Tongariro, in the northern island, forms an alluvium which girds the north-east end for about three miles, and is in some parts half a mile broad. In this beach there is a lagoon about a mile in circumference, and only separated from the sea by a

narrow strip of land. The water is brackish, in consequence of the sea, during heavy gales, being driven into it. The surrounding ground is somewhat marshy, and is covered with Phormium tenax, several kinds of rushes, the manuka (which was, at the time of my visit, in full flower), and an orchidaceous plant with fine flesh-coloured blossoms. The natives are acquainted with the farinaceous quality of the roots of this plant, and often eat them.

Kapiti is about twenty-five miles in circumference. It belongs to the transition formation, and contains much ancient trap-rock: clay-slate rocks and grey-wacke are the most common.

The whole island is covered with a very vigorous vegetation, mostly of trees, amongst which are fine timber-trees, especially the rata, kahikatea, and rimu. In the ravines and on the top of the hills there is a rich vegetable mould, where the plantations of potatoes, cabbage, turnips, and Indian-corn thrive well. Coarse grass of several kinds is found in some spots, affording, with the green bushes, food for a few head of cattle which were introduced into the island some years ago.

From the limited extent of this island, as well as from its formation, it is of small agricultural or commercial importance. It perhaps, however, deserves attention in a military point of view; and, together with the three rocky islands at its south end, has for many years been a very important place

for the chase of the black whale. In 1839 the produce of the establishments on these islands was 466 tuns of oil and thirty tons of whalebone, obtained by twenty-three boats; of which six belonged to the station on Evans's Island; two to that on Mayhew's, or Rauparaha's Island; eight to two other stations at Kapiti; and seven to two stations abreast of Mana. To this quantity must be added the tonguer's oil, so called from the man who "cuts-in the whale," for which he is allowed the oil of the tongue, of the heart, and of the intestines, for his own benefit. Including this, the whole quantity of oil may be stated at 500 imperial tuns. The management of these establishments, with the exception of that of Mr. Evans, has been on a very bad footing, as the whalers were paid in ardent spirits and bad slops, which were charged to them at exorbitant prices. Mr. Evans, who *finds* his men in everything, and pays them wages according to the quantity of oil they get, furnished one half of the above quantity of oil, and his establishment is in by far the best order. When I was on his island a whale was seen several miles off: in less than a minute several boats were launched and in full chase. Like all shore-whaling, however, that of Kapiti is on the decline, and I do not suppose that the establishment will be kept up much longer.

The productions of the vegetable and animal kingdom in Kapiti are precisely the same as those found on the mainland.

I have already remarked that there are a few head of cattle upon the island. They thrive well, and are claimed partly by Rauparaha, partly by E Hiko, to whom they were given as a present, or in charge, by Mr. Cooper of Sydney. Owing to the petty feuds amongst these people, and occasional sales to other parties, the stock has not increased, although there are pasture-grounds and food for a much larger number.

Kapiti and the adjacent islands have been sold over and over again to different parties, and spots may be found to which half a dozen different persons lay claim. The chiefs sell their land as many times as they can, still finding hungry sharks ready to purchase, though not very liberal in their offers, who establish by these means some shadow of a claim. A future investigation into the land-titles will afford much work and profit to the lawyers.

Fish of many kinds is taken at Kapiti in great abundance, and will become one day an important article of commerce. We caught with the sieve large quantities of a curious fish, belonging to the genus Balistes, about a foot long, and with a rough parchment-like skin of a brownish colour, which our carpenter used in the place of sand-paper. The first ray of the dorsal fin moves in a curiously-formed joint, and the sailors ascribed to it a poisonous quality. The fish itself afforded a very wholesome and agreeable food. Herrings, mackerels, gurnets, flatfish, several kinds of skate, and a variety of other fish, may be caught here in any quantity.

To the eastward of the southern end of Kapiti is the small island of Motu Narara. It is about three-quarters of a mile in circumference, and composed of soft yellow slate, which strikes from north-east to south-west, and dips to the south-east at an angle of about forty-five degrees. The vegetation is scanty, and confined to a few bushes of flax, or Euphorbium, and a species of Linum with blue flowers. On the north of this rocky islet is a sandy beach, on which stand the houses of the Europeans employed in whaling, and several huts of the natives.

This island is separated only by a narrow channel from Kapiti, and opposite to it lies a little valley, where a rivulet has hollowed out a bed in a hard siliceous rock overlaid by clay-slate. At the outlet of the rivulet is a native village. The water in the channel is deep enough for a small vessel.

Motu Narara possesses a spring of fresh water close to the sea-shore: it is, however, so small, that the natives generally procure their supplies from Kapiti.

Separated from this island by a narrow and shallow channel, lies Tauramoria, a barren hilly island, little more than a mile in circumference. It consists of clay-slate, and its shape is that of an obtuse cone. On its north-west side are some native huts; amongst them that of Rauparaha: and on the south-east side is a whaling establishment. All these habitations stand on a narrow rocky beach which girds the island.

To the northward is Evans's Island, the smallest of all, and a mere bare rock, just large enough to contain the huts of the whalers ; but it is the most eligible place for that business.

By these islands and the southern shore of Kapiti a roadstead is formed, sheltered from the prevailing north-west winds by Kapiti, and from the south-east winds by the three islets, and affording a safe anchorage for vessels. A ship coming from the northward, and passing between the mainland and Kapiti, can approach E Hiko's Island within about half a mile, taking care to keep clear of a reef near Evans's Island ; or may enter from the southward between Mayhew's and Evans's Islands in a clear channel.

The island of Mana, situated twenty miles to the southward of Kapiti, was called by Captain Cook Table Island, from its appearance. It is about three miles in circumference, and is exactly opposite to the outlet of the Pararua River, at the distance of about a mile. Where trees formerly grew, in the hollows and indentations of the land, the soil is good; the rest is covered by fern, native and artificial grasses, and clover, which are all that can grow in the thin layer of vegetable earth that scarcely covers the yellow schistous clay of which the island consists. But this vegetation is suited for the pasture of sheep, of which there are about 200 on the island, in very good condition. From this fact we may conclude that the hills of the same appearance around Port Nicholson are equally well

adapted for feeding sheep. Besides these sheep the island yields food to about thirty head of cattle, which were likewise in capital condition, and to some horses. Mana was sold some years ago to a Mr. Bell, who resold it to a Mr. Petersen in Sydney, under whom it was held by a German farmer. During our stay, however, it was the subject of a lawsuit, and was actually in the hands of two claimants, each of whom tried to ruin the other by selling the stock. The roadstead of Mana is a very bad one, being open to the south-east winds, with a strong tide setting in.

During the month of October the weather was very moderate. The utmost daily range of the thermometer was between 52° and 67° Fahrenheit, when the wind blew from the N.W. or N.E. On the 18th and 19th, the wind being from the S.E., the thermometer at eight in the morning indicated 50°, and did not rise above 53° as long as the gale lasted. From the 20th to the 31st we had very strong breezes with frequent squalls from the N.W. The thermometer during that time never rose above 60°, and never fell lower than 56°. At night the temperature was seldom more than three or four degrees lower than in the day. In a word, the climate during this month was as moderate as any European could desire. Rains were frequent; and almost continual winds kept the air pure and fresh.

CHAPTER V.

Return to Queen Charlotte's Sound.—West Bay.—East Bay.—Island of Arapaoa.

We left the roadstead of Mana on the 31st of October with a N.W. breeze, and steered for the entrance of Queen Charlotte's Sound, in order to go into East Bay, as it is called by Captain Cook, where the Nga-te-awa tribe have several settlements. The agent of the New Zealand Company had purchased from those of this tribe who reside at Kapiti all their remaining claims to the land on both sides of Cook's Strait, and he was now proceeding to purchase the claims of those residing in East Bay. Te Patu, whom I have mentioned before, lives at East Bay, and we took him with us from Waikanahi to his own settlement. The wind was favourable, and we crossed the strait in a few hours.

Before noon we had the Two Brothers on our larboard side: they consisted of rocks clothed with a thin vegetation. The sea breaks furiously against them, and access seems difficult. Seals have now almost disappeared from the coasts of New Zealand, but a few sometimes resort here: they do not, however, escape the pursuit of man, who follows them into their most secluded retreats. At noon we were

off Cape Komaru, a remarkably steep pyra promontory, which cannot be easily mistaken, and may serve as a safe landmark for ships running into the north entrance of Cook's Straits. Off this promontory are the White Rocks, just above water, consisting of the usual yellow schist. The coast of Arapaoa, towards Queen Charlotte's Sound, is of a similar formation, with the same strike and dip. This part of the coast partakes in its general appearance of the character which I have assigned to the coast in Cook's Straits, being steep and barren. Nearly opposite the Two Brothers there is a small beach, called Kapiti Beach, where the natives often land when they are prevented from crossing the straits, and reach the head of East Bay by a short and easy walk. The natives of the latter place dread this spot, as from it they can be easily surprised by their enemies. A fear was entertained in Queen Charlotte's Sound that Tairoa, the chief from Otago, was about to attack the Nga-te-awa tribes; and in East Bay the natives were fortifying their village against a surprise from Kapiti Beach.

When the Tory first came to New Zealand we entered Queen Charlotte's Sound between Motuara and Te Katu, or Long Island. This time we left Te Katu on our starboard side, and I observed that the shores were steep and scantily covered with vegetation. A large ship followed in our track from Mana, and arrived in East Bay a little after the Tory had cast anchor. She proved to be the Con-

cordia, the first ship sent out by a Danish company for the southern whaling-fishery, which, if successful, will be followed by others of that nation, formerly so active in the Greenland fishery. Amongst the nations engaged in the southern fishery the Americans rank first, as they employ annually 500 vessels, of from 300 to 500 tons each; the second place is held by the English, the number of whose vessels is, if I am rightly informed, 150; the French rank next, having not less than 140 ships. Besides these there are a few German vessels, chiefly from Bremen and Hamburgh.

We cast anchor in East Bay, shortly after noon, near the island of Matapara, which is about the size of Motuara, and is in the shape of a cone. As soon as we had anchored the cutter was sent off into Naruawitu—called by Captain Cook West Bay—to get a spar for a foreyard. I embraced the opportunity to visit that bay, and, crossing the sound with a fine breeze, landed at the decline of day on the northern arm of West Bay. In Cook's chart this arm is very correctly laid down, with the exception that it turns again to the left, and its actual head is separated from the southern arm only by a narrow ridge of hills. It seems that Cook did not explore the head of the bay. We found no suitable spar, and, the day being nearly gone, we took possession of some empty huts, which a Mr. Love had built for the men employed in cutting timber, and splitting staves, of which 100,000 were lying on

the beach. Fine trees surround this bay; and the flat land, which was about a square mile in extent, bore marks of former cultivation; but the inhabitants have disappeared: they were the tribe called the Rangitane. All that remains of this once numerous people are a few slaves belonging to the Nga-te-awa, who live at the Oieri or Pylorus River. After a war of extermination the right to West Bay was made over to another tribe of Nga-te-awa, who have never occupied the spot.

Our situation was not without the peculiar interest which an uninhabited land always excites in the mind. Behind and around us high steep and wooded hills towered over the bay in a semicircle. The night was extremely mild and calm; the air singularly clear and transparent. The sonorous fluting call of the large parrots, varied by their harsh scream when, on a sudden alarm, they started over the tops of the hills, and then returned to rest, were the only sounds that broke the deep silence. The water of the bay was as smooth as glass; for, being sheltered on all sides, it was unaffected by the winds which agitated the sea. Sometimes a parrot would perch on one of the trees embowering our huts, as if curious to ascertain who had ventured to disturb his repose. During the night a solitary cry from one of these birds might be heard from time to time, after which everything again became quiet. The sweet song of the mako-mako,[1] which I can only

[1] Philedon Dumerilii, Lin

compare to that of our nightingale, although I must confess that the former is simpler, and therefore more impressive, and the warbling of the tui,[1] whose note resembles that of our thrush or blackbird, cease at the setting of the sun; but in the morning, before he is above the horizon, the little songsters renew their music with increased vivacity, and their combined tunes form a pleasing concert. The only inconvenience we suffered was from the musquittos, which are always most numerous in places that have been cultivated but afterwards deserted. Early in the morning of the 2nd of November we again took to the boat, and ascended the southern arm of West Bay. This place has a beach of flat land, similar to that of the northern arm. Near the beach the land is swampy, and covered with junceæ, but soon ascends, bordered by the neighbouring hills. Two rivulets of excellent water discharge themselves into the sea. There were many fine timber-trees, especially tawai and pines. While the carpenter and his mates were occupied in preparing a spar I went up the side of the hills. The forest is open; deep layers of decayed leaves cover the rocks; the growth of everything appeared most vigorous: indeed throughout the whole of New Zealand nature seems to be eager to destroy and to reproduce. Large trees, unrooted and decaying, were preparing new soil for their successors, which were just struggling into existence.

[1] Anthochaera concinnata, Vig. and Horsf.

The peculiarly nourishing moisture of the soil displays itself in some ferns, which have germinated on their parent plant. The forest was enlivened by many of the common birds, and I brought home one of a new species, called pio-pio.[1] We slept another night in the bush. After the spar had been got into the water it would not float, and we were obliged to lash it under the keel of our boat.

West Bay is a very fine harbour, and, since good timber is found here, it would be a fit place for sawing-establishments, and for a village, whose inhabitants could with ease support themselves by cultivating the flat and available land. Fine sheep-walks are found on some of the open hills in the neighbourhood.

On the 7th of November I examined East Bay, which consists of three principal branches, on each of which are native settlements. East Bay is formed by the island of Arapaoa. One arm is opposite Hokokuri, the native settlement in Tory Channel, and is called Otanarua. The hills ascend gently from the sea, with a small extent of flat land of about 400 acres at their base. We found about 200 natives assembled there who had arrived from Hokokuri, to which place it takes about two hours to walk; they had come over to settle about the sale of their land; they have plantations here. The cabbage, which now abounds in Queen Charlotte's

[1] Turnagra crassirostris, G. R. Gray. Already depicted by Forster in his Icon. ined. t. 145.

Sound, and which grows wild, was in blossom, and covered the sides of the hills with a yellow carpet. There are a number of plants in New Zealand which are exactly the same as in Europe. Many of them are indigenous, others have spread with the cultivation of European vegetables. Such are the cabbage, Plantago major, Alsine media, Sonchus oleraceous, Stellaria media, Rumex crispus, Urtica dioica, Cytisus bullosa, Anagallis arvensis. The Juncus maritimus, effusus, filiformis, Scirpus lacustris, Typha angustifolia, Potamogeton natans, Chenopodium glaucum, maritimum, and others, must be regarded as indigenous, and, perhaps, the Plantago major.

On the beach were some huts, the occasional habitations of the wandering agriculturists. The beach itself is of a light soil. Higher up the hills the forest appears; the trees, however, are not tall enough for ship-timber.

At the head of East Bay is the village of Mokupeka, where we were well received, and presented with roasted potatoes, pork, and an excellent dried barracuda. This village stands on a spacious beach, surrounded by hills. Neatly planted taro and potatoes, kept free from weeds, ornamented the fields. The natives, when they dig the first crop of potatoes, leave the small ones in the ground, which grow during the winter, and give an early harvest before Christmas. Our friendly host showed us, with great satisfaction, a field of wheat, which was

in very good condition, and the seed for which Mr. Love had given him. This cove, although small, is one of the largest in Queen Charlotte's Sound. The sides of the hills appear to be very eligible for vineyards, as they are sheltered from the east and south winds.

I next explored that branch of East Bay which stretches to the westward. It is as large as the one I had first examined, and is called Anahuko. There is a small native village here. On the 4th I traced my way over the hills to Te-awa-iti, in order to see something of the interior of the island of Arapaoa. The track leads from a narrow beach up a very steep hill, just opposite the little island of Matapara. Some Europeans reside here during the summer, after the whaling season is over, for the purpose of procuring cheap pork and potatoes. It took me about two hours to reach Te-awa-iti. The hills are steep, covered with leptospermum, tall fuchsias with purple flowers, Edwardsias, and other shrubs. There are two kinds of Edwardsia in New Zealand, both of which have been introduced into England: they generally grow near the sea-shore, or by the banks of lakes or rivers. They belong to the leguminous plants, an order which is extensively spread in Australia, Van Diemen's Land, and the American continent. It is therefore more remarkable that none of the genera found in these countries are met with in New Zealand: but the order is represented here by genera peculiar to

these islands; namely, Edwardsia, Carmichaelia, and Clianthus. There are two fuchsias here: one, the Fuchsia excorticata, forms a moderate-sized tree, and is very common; the other, however, the Fuchsia procumbens, is very rare, and at present is met with only in Wangaroa Bay, to the northward of the Bay of Islands.

From the top of the hills I had a fine view over the whole sound. A deep inlet of the sea, looking like a majestic river bordered by hills, leads to the head of Queen Charlotte's Sound. In this fiord, as the Norwegians would call it, is a small island, bearing the traces of an ancient native fortification. I was prevented from visiting the head of this inlet, but ascertained that it is surrounded by a considerable extent of flat and well-timbered land, and that a river of some size discharges itself into it. As I descended, the view opened upon the southern entrance of Tory Channel and Cloudy Bay.

This hill seems to have been the one which Cook ascended to take his survey of the sound, and on which he planted the union jack, and left some coins. Some stones were heaped up and fenced in, but I did not dare to disturb them, as my guide told me it was the burial-place of a chief.

I found Te-awa-iti very empty, as the whaling-season was over, and the natives had followed Etipi, their chief, to Waikanahi, to assist in the war against the Nga-te-raukaua. Gardening had made some progress; and all the seeds brought by

the Tory had sprung up, and the plants were in a thriving condition.

A Scotch tailor, whose fate had driven him to Te-awa-iti, had voluntarily undertaken the duties of missionary, and the natives had built a house for him.

Returning in a boat to East Bay, through Tory Channel, I visited on the way some other small bays, where natives reside with some few Europeans amongst them.

The purchase of the claims of the Nga-te-awa tribes residing in East Bay to the land on both sides of Cook's Straits having been completed, on which occasion a general rush—fortunately unattended by any serious consequences—took place at the distribution of the various articles given in exchange, we set sail for Kapiti, which we reached the following day, November 11th. The natives were making preparations for hostilities, which it was expected would be renewed by the Nga-te-raukaua. Warepouri had arrived in Waikanahi from Port Nicholson, and also some people from Wanganui and Queen Charlotte's Sound, who had promised their aid if the Nga-te-raukaua should make another attack, which, however, they did not venture to do.

CHAPTER VI.

Northern Shore of Cook's Straits.

Owing to contrary winds and calms, we were unable to leave the roadstead of Kapiti until the 18th of November, when we weighed anchor and ran along the northern shore of Cook's Straits. From Waikanahi, the native settlement opposite Kapiti, this shore presents the aspect of low and irregular hummocks, either downs or covered with fern, and improving in fertility the farther they recede from the sea. This district is bordered, at a distance of three or four miles from the coast, by a wooded country, which rises gradually into ridges of mountains covered with snow during the winter season. These mountains, which do not exceed 3000 feet at their greatest height, belong to a congeries of hills running towards the centre of the island. They are of the same system of mountains as those the picturesque ridges of which strike the beholder on first entering Port Nicholson, and which shut in the view up the valley of the Eritonga. In the latter place they are called the Tararua, and their continuation into the interior the Rua-wahine. Both are distinguished by a chasm or cleft, which forms the valley of the river Manawatu.

The outward shape of these mountains is very uniform; they have everywhere the same longitudinal ridges, with narrow crests, here and there rising to a somewhat higher summit. The woody region reaches nearly to the top, and in many cases they are entirely covered by forest. At their sides these hills send off ramifications, which form ravines rather than valleys, from which small streams flow to the sea-coast. These mountains thus form a good geographical division, as from them on one side the waters run into Cook's Straits, from Port Nicholson to Cape Egmont, and on the other side to the east coast, into Hawke's Bay, or into the lake Taupo. The course of these rivers is short, rising as they do not far from the sea-coast; and from their flowing between hills, which give them many tributaries, the violent rains often swell them suddenly, and the streamlet becomes a mountain-torrent. It then overflows the low alluvial land forming its banks, and carries with it the stems of large trees, especially pines, which either remain fixed in its bed, or are buried near the sea-coast when driven back and left dry by the tide. I consequently found a great deal of drift-wood at all the rivers, the quantity bearing little proportion to the size of the streams. Of these rivers may be mentioned the Waikanahi, the Waimea, the Mahia, the Wai-e-rongo-mai, the Waikewa, the Ohou, the Waiwiri, the Orewenua, and the Wai-te-rawa, which we passed in rapid succession. At the Wai-

mea is stationed a large tribe of natives, the Nga-te-raukaua, whom I have already mentioned as the enemies of the Nga-te-awa. Their pa, or fortified village, is called Otaki.

The river Manawatu is the longest of all these rivers. It takes its rise in the most elevated inland group of mountains, the Ruapahu. As is the case with all the rivers in Cook's Straits, the force of its waters is not strong enough to remove the sand which is thrown up at its mouth by the south-westerly and north-westerly winds; and its depth over the bar is therefore only six feet at low water; the tide rises eight feet. Its breadth at the mouth is about 300 yards at half-tide.

From all the accounts which I received from the natives, both in Cook's Straits and in the interior of the country, the river Manawatu has a very winding course; in some places, after making a sweep of several miles, it returns within a quarter of a mile to the same spot, and in this manner forms paddocks of very fertile land, often clear, but in parts rich in many kinds of timber. Inside the bar the river deepens sufficiently to admit small vessels for about fifty miles. The natives of Taupo often descend it with their canoes to Cook's Straits. Its embouchure is, according to Captain Smith, in lat. 40° 27′ 23″ S. From this description it must be evident that it would be of great importance for the settlers in Cook's Straits to explore the Manawatu more accurately, especially as it is reported that

from its upper part there is an easy communication with the Hauriri in Hawke's Bay, a river which is known to have very fertile land on its banks.

About six miles from the mouth of the Manawatu, the Rangitiki, a smaller river, likewise owing its origin to the Ruapahu, falls into Cook's Straits. It brings, as does also the Wanganui, a great quantity of pumicestone from the Tongariro, a volcano in the interior.

To the westward of a line drawn from Otaki to the Ruapahu, and thence to Mount Egmont, the country is comparatively level. Across this district the Ruapahu rears its massy head to the height of about 9000 feet, and is covered with eternal snows.

Several streams run into the sea between the Rangitiki and the Wanganui, but are smaller and of less importance: they are the Wai Patiki, the Waikanahi, the Wai Kopuka, the Mahora, the Turakina, the Wangaiho, and the Kaitoki.

In the evening of the 18th, the natives whom we had taken on board—and amongst whom was a fine young man, E Kuru, the son of the principal chief at Wanganui—looked out in vain for the entrance of the river of that name, which we intended to visit if large enough to admit the Tory. E Kuru was an intelligent fellow, but had never seen his native place from the deck of a ship. To add to the difficulty, the coast has a great sameness of appearance, and the mouths of the different rivers present little peculiarity when viewed from the sea.

Unable to find the mouth of the river, we stood off the land during the night, and on the following morning found ourselves to the northward of Wanganui, which we were unable to reach until the morning of the 20th; for on approaching the coast we found that the water shoaled to a distance of about three miles; and it was therefore thought advisable to send Mr. Barret, our pilot, to explore the entrance, and to convey E Kuru to his village. He afterwards reported the depth of water over the bar to be insufficient to admit the Tory, and we therefore stood again to the northward. As, however, one of the Company's settlements has been formed at the mouth of this river, which is already inhabited by several hundreds of Europeans, I will give a few particulars regarding this place which I have gathered from different sources.

The entrance to the Wanganui river, situated in latitude 39° 55′ 54″ S., is half a mile broad, but at low water its depth does not exceed eight feet, so that it will only admit vessels of moderate burden. The largest craft that ever entered it was a vessel of 150 tons. The headlands of the river are low; a spit of sand runs off the southern head, and the channel is near the northern. At low water the sea breaks across the bar. Inside the bar the river deepens, and is about 300 yards broad. Its banks here are low and sandy, and covered with driftwood and pumicestone, which the river brings down from its source, which is in the Tongariro.

At a little distance from the sea-shore is an extensive flat covered with flax and fern; farther up the banks become higher, and form cliffs consisting of a blue clay, with fossils, which, from all I have seen, I should judge to belong to the newest tertiary epoch. About thirty miles from the mouth the river is enclosed between the neighbouring hills, which are well wooded, and run towards the Tongariro. Near the latter, however, the country is again more open and flat, although much broken; and the soil consists of pumicestone and tufa, as I shall hereafter describe when speaking of the interior.

A large tribe of natives live near the Wanganui, and possess several pas up the river. A station of the Church Missionary Society is now established amongst them, and the missionaries have succeeded in making several converts, but were unable to prevent two sanguinary battles which lately took place between this tribe and the natives from Taupo Lake. These latter are able to descend the Wanganui to Cook's Straits in their canoes from within a short distance of its source.

We landed E Kuru; and although we were unable to enter the river, the possession of the district was secured for the New Zealand Company, having been obtained during our stay at Kapiti, where the principal chiefs of Wanganui, who were then present at Waikanahi, had made the land "tapu" for the Company, on receiving some presents.

The coast from Wanganui to Cape Egmont presents a cliff of moderate height, on the top of which the land is flat, and rises with a very gentle slope towards Cape Egmont. In many places layers of lignite are found in the cliffs. The whole district possesses great facilities for agriculture, being covered with flax and fern. The forest begins at some distance inland.

The rivers along the coast from Wanganui are the Waitotara, about twenty miles to the northward, the Wenuakura, the Patea, the Tangahohi, the Waimate, and the Kakapuni, all of which are small. There are natives on the banks of all these, and Waimate is known as the place where, on the shipwreck of the barque Harriet, a fierce struggle ensued between the natives and Europeans, in which several men were killed on both sides. Although this conflict, according to all the accounts I could collect, was caused by the Europeans, Her Majesty's vessel Alligator afterwards inflicted a severe and summary punishment on the natives.

But to return to the Tory. We left the mouth of the Wanganui immediately after Mr. Barret had come on board. The weather looked threatening, and it soon blew a gale of wind. The whole coast from Kapiti to Cape Egmont, and thence to the northward, is a complete lee-shore, on account of the prevalence of north-westerly and south-westerly winds; a heavy swell sets towards the coast, and, as the sea to a great distance from the shore has only little depth, ships are obliged to keep a good offing.

CHAPTER VII.

Taranaki, or Mount Egmont.

On the 22nd of November we obtained the long-wished-for view of Mount Egmont, and also of the Ruapahu, both of which were to a great extent covered with snow. But they were soon again hid from our view; and it was only on the 27th of November, after having experienced much bad weather and several severe gales, that we anchored to the northward of the Sugarloaf Islands, about two miles from the shore. Soon after we had cast anchor a waterspout rose not far from us. The weather had now begun to clear up; and I scrutinized the sides and lofty summit of Mount Egmont, which, once thrown up by the mysterious fires of the deep, was now apparently in a state of repose, to discover whether there was any possibility of ascending it, an undertaking which had never yet been achieved.

We had brought from Port Nicholson one of the principal chiefs, Tuarau, who was delighted to see the land of his birth and to assist the Company's agent in the purchase of it. Our boat, which was sent ashore, was unable to land on account of the surf, but brought back two natives who had plunged into the foaming sea and swum to it. The meeting

on our deck between them and Tuarau was almost solemn; they did not utter a word, and struggled to conceal the deep feelings which evidently agitated them.

Our anchorage was not regarded as safe; and as the continual gales of the last few days had left a heavy swell, which made communication with the shore difficult and hazardous, it was determined that the Tory should proceed on her voyage to the northward, and that Mr. Barret should remain in Taranaki to keep possession of the land for the New Zealand Company. I immediately resolved to stay with him, and we landed on the morning of the 28th. I could not have found a better opportunity for examining a district so little known, and determined to occupy the time until the return of the Tory in ascending Mount Egmont, which I expected would prove in more than one respect an interesting and profitable achievement. I must mention that Mr. Barret had lived for several years near the Sugar-loaf Islands, prior to the period when almost all the original natives yielded, after a long-continued contest, to the tribe of the Waikato, who live about sixty miles to the northward. The natives of Taranaki migrated to the eastward, and settled on both sides of Cook's Straits, and especially at Kapiti, Port Nicholson, and Queen Charlotte's Sound. Only a few remained, who could not be persuaded to leave the land of their forefathers, for which, indeed, all migrated tribes evince the greatest predilection, and

cherish the hope that, by the help of the European colonists, they will one day be able to return and recover their lost territory. Since the removal of the majority, the small remnant of the original natives of Taranaki had lived a very agitated life, often harassed by the Waikato, and seeking refuge on one of the rocky Sugarloaf Islands, at times dispersed into the impenetrable forest at the base of Mount Egmont, sometimes making a temporary truce with their oppressors, but always regarded as an enslaved and powerless tribe. They could not, however, be induced to join their relations, and the reader can well imagine with what joy they hailed the arrival of their old friend Barret, and how they cherished the hope of rising from the degradation in which they had lived for so long a time, and again becoming an independent tribe.

We landed to the northward of Paretutu, or Sugarloaf Point, a dome-like cone of trachitic porphyry, which rises to about 300 feet, and stands quite by itself. We turned our whale-boat over, and made preparations for passing the first night under it.

As soon as we had landed the Tory weighed her anchors, and, with a favourable breeze, was soon out of sight.

On the beach, from which large sand-hills here rise, I picked up many specimens of the neat and delicate shells Spirula australis.

The land near the beach is, in some parts, covered

with shrubs; in others the loose sand has here and there acquired some solidity from the roots and fibres of a running carex, which is the first preparatory step to its becoming fit for other plants. In several places behind these sand-hills lagoons of fresh water are found, which abound with ducks, but contain no other fish than some large eels, in order to catch which the natives formerly cut through the sand-hills and emptied the lagoon. Round these lagoons the vegetation was very rich, and amongst the shrubs was the handsome Apeiba australis, which I observed here for the first time.

Towards Sugarloaf Point large boulders, all consisting of volcanic rocks of apparently an old date, as basalts, greenstones, trachyte, augitic rock, &c., were cemented together into an extremely solid conglomerate, which appeared to extend like a stream of lava from Mount Egmont into the sea, but cannot be traced far. Where the water washes these rocks the conglomerate is peculiarly hard, and this is caused by a chemical action of the salt water, either on the particles of the iron pyrites, with which several of the rocks abound, and which often cover the pebbles with a metallic crust, or else on the black titanic iron-sand which is found on the beach. In some places this chemical action is accompanied by the development of a good deal of heat, which is perceived where, at the retiring tide, the sea leaves ponds of water between the rocks. A strong smell of sulphuretted hydrogen gas may also be observed about

a mile from high-water mark. The natives have a whimsical story of an "atua" (spirit), who they say was drowned here, and is still undergoing decomposition.

In some places the sandy downs at a little distance from the shore are covered with a hard crust of oxydated iron-clay, which forms the most fantastic shapes of tubes, saucers, &c., evidently owing to the oxydation of the particles of iron in the sand by water and air, and subsequent adhesion to each other. All this interested me much, proving a former extensive activity of volcanic powers, the centre of which was Mount Egmont, situated at a distance of twenty-five miles; its summit afforded me a never-failing object of attraction when it was free from clouds, or when the morning or evening sun gilded its snowy summit with a rosy hue.

Aqueous formations were visible on both sides of Sugarloaf Point; they consisted of cliffs of yellow clay, and in some places contain formations not of coal or lignite, but of wood, embedded in discoloured blackish earth. Towards Mokau these formations are especially visible, and form everywhere one of the most remarkable features in the geology of New Zealand. Elevated about ten feet above the level of the sea, they consist, according to all that I could ascertain, of the remains of trees belonging to species still existing in the island, and are an indubitable proof that an elevation of the land above the level of the sea has taken place at a

period when the same vegetation existed as at present. I never found any remains of animals in these formations, which are however irregular and interrupted.

It is a question of great interest to geologists, to what cause is to be ascribed the formation of those extensive coal-fields which form the principal source of our industry,—whether they have taken their rise from the submersion of a whole forest, or the floating of uprooted timber into estuaries of the sea or lakes, or whether they are due to the submersion of peat-beds. Guided by the principle that the former epochs in the earth's history can be best deciphered by studying her present aspect and the alterations which are going on before our eyes, I have arrived at the opinion that our coal-formations were formerly peat; that the timber which is deposited in estuaries or inland lakes will ultimately become lignite, or brown coal, which has lost scarcely any of the qualities of wood. A river which brings vast masses of wood to the sea must of necessity deposit them in a very unequal manner, mixed with alluvium of various descriptions, and must imbed in this formation such testaceous animals as are living near the spot. Such is the case at present with the New Zealand rivers; such are the lignitic formations which we observe at present above the level of the sea in this country; and of the same nature are the mines of lignite which are worked in many parts of Germany. Will anybody contend that it is pos-

sible by any agency—whether by the pressure of a superincumbent formation, or by igneous causes from below, or by both agencies combined—to convert that mixture of trees and earthy or mineral substance into the homogeneous substance which is spread out in such regular stratifications, and which we call coal? I, for my part, cannot credit the possibility of such a change. It is different with peat, which occupies large tracts in the countries out of the tropics, very often in horizontal and equal layers, and which we see imbedding trees in an upright position. If artificially compressed it resembles coal far more than does any lignitic substance that I have ever seen. I have brought specimens of peat from the Chatham Islands, taken from a layer not in actual formation, but covered by a loamy earth several feet in thickness. In these specimens, which it was evident were formerly pure peat, I can observe a conchoidal fracture and lustrous appearance greatly resembling coal, whilst in other parts of the same specimen the gradual transition from true peat is evident. I am well aware that eminent geologists have contended for the double origin of coal, and others will only admit the simple one from wood; but they will, probably, come to a different conclusion if they turn their attention more to present processes, and divest their minds of preconceived ideas regarding a difference of phenomena in former days.

One of the Sugarloaf Islands also consists of aqueous deposits, namely, yellow and soft sandstone.

But the rest of these islands are steep and conical masses of a greyish trachite, containing much feldspar, with scarcely any vegetation on them beyond the Phormium tenax, Mesembryanthemum australe, Pteris esculenta, Peperomia d'Urvillei, Microcalia australis, epacris, linum, &c. Numerous seaweeds float at their base, amongst which were the Laminaria flabelliformis, Sargassum carpillifolium, Marginaria urvilliana, &c.

I found about twenty natives near Sugarloaf Point; the place seemed only a fishing station: the remainder of the Taranaki tribes lived either on concealed potato-plantations, or farther south near Cape Egmont. On our arrival being known, they assembled around Mr. Barret, and with tears welcomed their old friend. In a singing strain of lamentation they related their misfortunes and the continual inroads of the Waikato. The scene was truly affecting, and the more so when we recollect that this small remnant had sacrificed everything to the love of their native place. I perceived in the evening how much they stood in dread of the Waikato. A fire had been observed in the direction of Kawia, and the fear that the Waikato were again on their way to Taranaki kept them awake during the greater part of the night.

The principal village of the Taranaki natives formerly stood a little to the westward of Sugarloaf Point. Besieged by the Waikato, who had come in great numbers from Kawia, they effectually kept

them at bay, with the help of Mr. Barret and eight other European traders, who at that time lived with them in the village. Three pieces of cannon in their possession made great havoc amongst the Waikato. The exasperation on both sides was great, and the prisoners captured at occasional sorties were devoured. The Waikato at last raised the siege and returned to Kawia; nevertheless the Nga-te-awa resolved to quit the district, and, 2000 in number, they started together with the Europeans. This took place in November, 1832. At a second attack the Waikato destroyed the pa, of which now scarcely any vestige remains, with the exception of the fosses; the cannons had been spiked by the Nga-te-awa on their departure, and were still lying on the beach.

South of Sugarloaf Point to Cape Egmont and Waimati, the country, as I ascertained from many subsequent excursions, slopes very slowly from Mount Egmont to the sea-coast. In fact, the country is so level round the base of Mount Egmont that the latter seems almost to rise immediately from the plain. The coast forms a cliff of moderate height, and consists of a yellowish sandy loam—an excellent substratum for a rich mould which covers the top, and which increases in depth towards the foot of the mountain. Near the sea-shore the soil is light, intermixed with sand. In general the land for three or four miles from the coast is open, and covered with a uniform vegetation, especially of flax or fern; in the little

dales, however, are groves of trees, or swamps covered with bulrushes and reeds.

A countless number of small streams here discharge themselves into the sea: scarcely a mile was passed without our crossing a streamlet, which was sometimes knee-deep. They came from Mount Egmont, or from several small lagoons situated between it and the coast.

The Sugarloaf Islands are five in number: the three nearest the shore are Pararaki, Paparoa, and Mikotai; then Moturoa; and afterwards Motumahanga, which is the outermost. Besides, there are some rocks and reefs. The native name for them, as well as for the whole district near Sugarloaf Point, and for the tribe formerly living near them, is Nga Motu—the Islands.

To the northward of Sugarloaf Point are three small creeks—the Huatoki, the Enui, and the Waiwakaio. Everywhere on their banks are traces of former cultivation and of native villages, but now no one lives here: thus the finest district in New Zealand is almost uninhabited—a sad instance of the mutual hatred existing among savage clans.

The natives could not understand what induced me to ascend Mount Egmont; they tried much to dissuade me from the attempt, by saying that the mountain was "tapu," that there were ngarara (crocodiles) on it, which would undoubtedly eat me; the mysterious bird "moa," of which I shall say more hereafter, was also said to exist there.

But I answered that I was not afraid of these creations of their lively imagination, and that if they wanted large payment for their land I must first go and look at it; that it was possible—though not very probable—that the monikoura (money-gold) was found on the mountain, and that if, through their refusing to provide me a guide, I was the first to reach the summit, I would make the mountain "tapu" for myself, according to their own law. An old Tohunga, or priest, was therefore persuaded to show me the way as far as he knew it, and with him, and an American man of colour, I started on the 3rd of December. Tangutu-na-Waikato, as the worthy priest was called, was particularly qualified for the office of guide on this expedition. In the wars between the Nga-te-awa and Waikato, the latter had carried away his two wives into slavery; he himself escaped to the mountain, where they were unable to find him. There he lives by himself, as all his kindred are gone, and cultivates small patches in the impenetrable forest, which supply him with food. The Waikato often chased him, but he was always fortunate enough to escape. The old man was renowned for his skill in the arts and the mystic lore of a priest of his nation, and had lately become a zealous missionary; and although he almost invariably kept his puka puka (hymn and prayer books) upside down when he pretended to sing his psalms or read the service, yet what he sung and said pretty nearly corresponded with the

text, as he knew the books by heart. A mat of his own manufacture, as he had no female to work it for him, was his only dress; a hatchet his only weapon. We did not take much provision with us, as the party in Nga Motu had little to spare, and as we had no means of carrying it. I trusted to my gun and to the stores of Tangutu in the bush.

Our road led us along the beach to the northward. We crossed the Huatoki and Enui creeks, and then turned into the interior over the downs and hillocks of the coast, which were covered with fern and flax, overshadowed here and there by a picturesque ti (Dracæna australis). About two miles from the coast we came into a low shrubby forest, where the soil consisted mostly of a very dark vegetable mould. Tangutu had here cleared a place in the middle of the bush, where he had formed a clean and well-weeded garden, planted with potatoes, taro, onions, water-melons, and pumpkins. Not far from this point we crossed the river Waiwakaio, a rapid but not very deep stream, with a broad and pebbly bed, all the pebbles consisting of hard and blue trap-rock. About a mile farther we passed another deep creek—the Mangorake, a tributary of the Waiwakaio, where my guide had another potato-field. The forest consisted generally of tawai; here and there might be seen a majestic Rimu pine, or rata, bearing crimson flowers. There were many arborescent ferns, and in the deepest shade grew the Nikau palm (Areca sapida). Sometimes we came

to an open spot, several square miles in extent, probably cleared by natives, but now grown over with the highest Phormium tenax I ever saw. The leaves in many instances were twelve, and the flower-stalks twenty, feet long; their flowers contain a kind of sweet liquid in considerable quantities, the extraction of which forms a favourite occupation among the New Zealand children. The cryptogamous plants, ferns, jungermanmas, and mosses, bear in New Zealand rather an undue proportion to the phanerogomous—a circumstance which is unfavourable to the rearing of bees. I am not aware that there is any native bee in New Zealand, but in certain seasons the European bee would find a great quantity of honey and wax in the Phormium tenax. Bees have been introduced into New Zealand from New South Wales: my excellent friend, the Rev. Richard Taylor, at Waimate, had a hive, and they were thriving remarkably well; but in that neighbourhood many European plants had been introduced.

The country began now to rise a little, but the elevation was so slight as to be scarcely perceptible. Everywhere vegetation appeared most vigorous, and the primeval forest was often almost impenetrable, on account of thick creepers, and the thorns, tataramoa (rubus), of which several species are found, and which tore our hands and faces severely. We scarcely ever obtained a view of the sun, and the shade of the trees produced a delightful coolness,

although the thermometer in open places rose to 90°, and at six in the evening on a hill it stood at 80°. We did not see many birds, and I need scarcely repeat that the most perfect silence reigned through the forest. Although we walked on a track, it was one visible only to the eyes of Tangutu; and it was not until after much practice that I could distinguish, in the turning or the pressure of a leaf, indications that the path had ever been trod by mortal feet. My guide went patiently forward, carrying a heavy load for me, without a murmur, although a priest and a person of consequence among his own people. We soon came to another potato-field of Tangutu, where he had a house; he here entered the forest, and quickly returned with some fern-root and some dried shark which he had concealed, and which greatly increased our scanty stock of provisions. In consequence of the insecurity of their persons and property, it is very usual with the Taranaki natives to have plantations of this sort in the forest, which are often known to the proprietor alone, and to which he can fall back in times of need. Frequently Tangutu would on a sudden make me stop on the way, and, entering the forest, would return either with a dried fish, or with some oil, contained in a dilated joint of kelp, with which he would grease his dark and glossy hair; sometimes he brought a handful of leeks, which were always welcome.

At sunset we arrived at the cleared summit of a hill, where we found several houses for provisions,

which are always built on posts, to guard against the rats, and also two other houses. A thick forest surrounded this place on all sides. The plantations of potatoes, all belonging to Tangutu, and planted with his own hands, were in tolerably good order. There was no want of provisions; and pigeons, potatoes, leeks, taro, cabbage, turnips, and the young shoots of Sonchus oleraceus were all at our command.

Before it was quite dark, flights of the Austral Nestor passed over our encampment, shrieking in a dismal manner, and alighted for a moment on one of the dead trees at the skirt of the forest, to watch with a stupid curiosity what was going on below; but they soon became quiet, with the rest of the inhabitants of the forest. In the twilight there was also a small bat flying about, but I did not succeed in shooting one. During the day a sandfly (ngamu), a tipula, is very troublesome in New Zealand, especially near the sea-shore; and, diminutive as they are, they are perhaps the most bloodthirsty animals that exist, attacking all the exposed parts of the body. With the last ray of the sun they all disappear, but are immediately replaced by the musquittos, which, however, are numerous only in particular spots, such as the cleared places of the forest. We had taken our abode in an old house, where the rats ran over us all night, and two species of smaller animals, not to be named to ears polite, were by no means scarce. An old native house is a hotbed for all this vermin, and after this night's

experience I always preferred sleeping in the open air, or under my own tent, which I found by far the most comfortable.

Before sunrise on the 4th of December the thermometer stood at 44°. We took an east-south-east direction, and after descending the hill we had to pass a large creek flowing to the eastward. Our road lay over gently undulating hills, which were covered with a dense forest. The cabbage-palms were the highest I ever saw. We passed several other streams, and at noon halted at another plantation belonging to our guide. He rested here during the day to arrange our provisions for the continuance of the journey. This field was situated at the side of a river, which rolled over a pebbly and rocky bed, and was canopied by the trees on its banks. From the high tawai-trees[1] a graceful moss hung down in long festoons. This creek was the Mangorake, which we passed the day before.

The temperature here at noon was 91° in the sun and 72° in the shade, and I found the heat very oppressive.

I could not prevail upon Tangutu to start the next morning, as this was his last plantation. The sky was overcast, and he said that the weather would be bad for several days. We had some dried shark and potatoes, with maize, but not sufficient to last us many days. Birds are everywhere scarce, and too small to be worth powder and shot. One

[1] Leiospermum racemosum.

bird that I found here is of a new species; it is called E Ihi, and belongs to the class of the honey-eaters.[1] Another bird, the tierawaki (Jcterus ~~rufisater~~, Less.), is very common. It is as large as a blackbird, of a jet-black plumage, with red-brown coverlets of the wings and tail. It has two small orange-coloured appendages at the base of the beak. This bird is seen on the lower branches of trees, is very lively, and has a loud penetrating note. It always screams when anything attracts its attention—huei, huei, tierawak, tierawak. It feeds principally on fleshy berries, but also on coleopterous insects.

Pouring rain lasted during this and the following day. On the afternoon of the 7th, the weather having somewhat cleared up, we started, but had not proceeded far before the rain again compelled us to halt. It must be observed that travelling through the bush in New Zealand is rather a scrambling affair, and with a load is very fatiguing, and cannot be kept up for a long time. Fifteen miles I considered a very good day's work, even in the open parts of the island. We took up our quarters under the shelter of a rata-tree.[2] Several species of the kind to which this enormous tree belongs were common; but the pukatea was the most frequent. I was roused in the night by the psalm-singing of old Tangutu, who could not sleep, and was probably afraid that Atua was de-

[1] Ptilotis cincta, Dub. [2] Metrosideros robusta.

termined to oppose our ascending the sacred mountain by means of the bad weather which had now set in.

On the 8th we several times crossed the Mangorake. Its banks are steep, and from one of them Tangutu dug out a titi: this bird, a Procellaria, or mutton-bird as it is commonly called, has many peculiarities. In the month of December it comes from the sea to the mountains inland, especially to the fore-hills of Mount Egmont. Here the female, which is at that time very fat, but afterwards becomes thin and emaciated, lays one egg, which is remarkably large for the size of the bird. Instead of building a nest, she deposits and covers over her egg in a deep channel under the roots of trees, or at the sides of a cliff, and never leaves the place until the egg is hatched. The natives believe that during this period the female takes no food, and have accordingly named it "the bird of one feeding" (e manu wangainga tahi).

On the 9th we travelled for some time on the right bank of the Waiwakaio river, which is the largest of those that take their rise on the northern side of Mount Egmont. Although of very unequal depth, it is a true mountain-stream; it rolls over a broad bed of boulders and pebbles, and often rises suddenly when the snow melts, or when the rain has been heavy. Its banks were moderately elevated; on their top the land was flat, and the whole was covered with forest of the wildest and most

primeval aspect. We passed numerous tributaries of this river, some of which were of considerable depth, owing to the late rains, which had also formed stagnant pools between the roots of the old trees. At one place Tangutu conducted us into the bed of the river, whence we had the satisfaction, for the first time since we had entered the forest, of seeing Mount Egmont, which rose to the south-by-west, covered with snow, but its summit hid in the clouds. The dense forest on both sides of the river formed, as it were, a framework to the picture. My guide suddenly stopped at the bank near this point, and, clearing away with his hatchet a few of the young tawai-trees, chanted some hymns, and begged of me to read a chapter from St. Paul's Epistle to the Romans. On my asking the reason of this sudden procedure, he told me that many years ago, going with a party to fetch kokowai (red ochre) from the foot of the mountain, they had been surprised at this spot by a party of Waikato, and that in the struggle which ensued his mother had been killed. He had never, he said, visited that spot without paying a tribute to her memory.

We stopped for the night on a low island in the Waiwakaio, called Waiwiti, grown over with kahikatoa (Leptospermum), intermixed with a junceous plant, the Hamelinia veratroides of Achille Richard (Astelia Banksii), the seeds of which form the food of the kiwi and weka (Apterix Australis and Ral-

lus Australis). The island bore evident marks of being frequently overflowed, as large stems of drifted trees were collected on it. The river Waiwakaio is extremely well adapted for the application of water-power to manufactories and mills; and the whole district of Taranaki, as far as I have yet seen, rivals any in the world in fertility, beauty, and fitness for becoming the dwelling-place of civilised European communities.

Our provisions grew very scanty; and when on the following day the sky was again overcast, and the rain poured down in torrents, I almost gave up the hope of ever reaching the summit of Mount Egmont, especially as Tangutu now frequently lost all trace of the right direction. We proceeded, however, along the left bank of the river, wet to the skin. The trees over which we had to clamber were extremely slippery, and, although they preserved their outward shape, we often sunk knee-deep into their soft and decayed substance. To appease our hunger we had nothing but the young shoots of a fern, or the mucous undeveloped leaves of the Cyathea medullaris; these, with the heart of the cabbage-palm, and, in open spots, the roots of the Pteris esculenta, are, generally speaking, the only *eatables* that can be obtained in a New Zealand forest. The rain had made my gun useless—a matter, indeed, of less consequence, as there was no game, and very few of the smaller birds. The confidence shown by these birds proved that they are not often disturbed by

the approach of man. The boldest was a fly-catcher[1] of an ashy colour, which hopped continually over the rotten trees, searching for insects. It builds its nest on the lowest branches of small trees, where they join the stem, and constructs it neatly of moss, lining it inside with the soft and villous cover of the young undeveloped leaves of the Cyathea medullaris.

The rain continued during the 10th and 11th, and all our provisions were gone. We could procure no dry wood to make a fire; we had no tent with us, and got but little shelter from the trees. During these nights the forest assumed a beautiful appearance: the fallen trees, and almost the whole surface of the ground, sparkled in a thousand places with the phosphorescence of the decayed matter;—we seemed to have entered the illuminated domain of fairy-land.

When the weather cleared up we determined to return, abandoning, for the present, the attempt to reach the summit of the mountain. Taking a different track from that by which we had come, we again stood on the sea-shore on the evening of the 15th of December.

During our absence plenty had reigned at Nga Motu: the natives had daily gone out fishing, and the quantity of fish they took was so great, that they were enabled to dry large numbers in the sun for store. Pigs and potatoes had also been brought

[1] Miro longipes, Less.

from the southward. A Waikato chief, with his followers, had come on a friendly visit from Kawia, and there was apparently a good understanding between them and the natives at this place. The abundance of food enabled me to start again on the 19th, determined, at all hazards, to accomplish the ascent of the mountain. I persuaded E Kake, one of the chiefs, to accompany me, who took a slave with him, and sent on before a female slave to one of his plantations which lay in our route, with an order to prepare maize-cakes for us to carry as provisions. The companions of my last trip again accompanied me, and our party was joined by Mr. Heberley, a European, who had come with us from Te-awa-iti, where he had lived for several years as a whaler, and who was most expert in finding his way through all the difficulties attending such an expedition as this. This time I was more fortunate. Although we took a different route, in order to obtain provisions at the settlements of E Kake, in four days we reached our last halting-place at the foot of the mountain. We had to walk for some distance along the rocky bed and through the icy water of the Waiwakaio; but notwithstanding the force of its rapid current, which often threatened to throw us down, we heeded not the difficulty, as we had the gratification of seeing the summit of the mountain directly before us. We climbed at last up a ridge rising on the left bank of the river, and running in a north-east

direction from Mount Egmont. This ridge is very narrow, and forms, towards the river, a sharp escarpment; nor was it without some difficulty that we reached its crest. Higher up is a frightful precipice, close to the edge of which we had to walk. Lying down, we looked over into the deep gorge, which appeared to have been split asunder by volcanic agency, and to have been hollowed out more and more by the action of the river. This ridge was still covered with wood; but, as we ascended, the trees gradually became less lofty, and soon gave way to stunted shrubs. Low and crooked pines, especially totara and miro, and the manuka, gave a character to the vegetation as affiliated kinds of trees do to the mountain-crests of Europe. I found one plant of a new pine two feet high, and very much resembling the Taxus baccata of Europe. The thermometer rose during this day to 76°, and when we halted in the evening, shortly before sunset, it stood at 61°, but fell immediately afterwards to 51°, and the cold became very severe: our altitude was about 5500 feet. We prepared to rest amidst the stunted and dwarfish shrubs, amongst which I observed the Dracophyllum rosmarinifolium, Solidago arborescens, and several other compositous plants. We were able to obtain sufficient fire-wood a little way down the sides of the ridge, where we found many bleak and dry stems of large dimensions.

The escarpment which I have mentioned con-

sisted of a blue basaltic lava, overlaid to the depth of from ten to fifteen feet by a formation of fragmentary rocks, boulders, and pebbles, which, however, I could not accurately examine.

Scarcely any birds were to be seen at this height: the cry, however, of the parrots re-echoed from the woody gorges; and a little bird, which is peculiar to these heights, busied itself in our neighbourhood; it is related in shape and habits to our Sitta, but is much smaller, and of a dark-green plumage. It is the Acanthisitta tenuirostris of our Index, and called piwauwau by the natives.

Not far from this point the ridge forms a platform, from which rises the pyramidical summit. We reached the platform by descending into a deep gorge which an arm of the Waiwakaio river has scooped out of the blue lava. We walked with ease in the rocky channel thus formed, and soon came to the source of this arm, which took its rise from under a frozen mass of snow which filled up the ravine and remained unmelted, although it was now the middle of summer. This place, however, is not to be regarded as lying within the limits of perpetual snow, as the duration of this frozen mass resulted from the fact that the influence of the sun was obstructed by high walls rising on both sides. There was very little vegetation here: I collected, however, a Viola, a primulaceous and a ranunculaceous plant, a Myosotis, and the Microcalia Australis, the southern representative of our daisy, which

it much resembles. We now began to ascend the cone, which consisted of cinders, or slags of scoriaceous lava, of various colours—white, red, or brown,—and had been reduced almost to a gravel, so as to offer no resistance to our feet. These volcanic products cannot be distinguished in their lithological characters from scoriæ of the Auvergne. We soon came to the snow, at a point about 1500 feet below the summit. The limits of perpetual congelation in New Zealand correspond nearly with the result obtained by calculation according to Kirwan's formula, which, taking 59° as the mean annual temperature of New Zealand, would give for the limit of perpetual snow 7204 feet; deducting this number from 8839 feet, which is about the height of Mount Egmont, we have 1635 feet below its summit as the lowest point at which the snow is perpetual. Vegetation had long ceased, not from the great elevation, but from the entire absence of even a patch of soil where plants might take root. In the ravines, as I have already observed, the snow was found much lower down.

As soon as we had reached the limits of perpetual snow, my two native attendants (the third had been left behind at the last night's halting-place) squatted down, took out their books, and began to pray. No native had ever before been so high, and, in addition to that awe which grand scenes of nature and the solemn silence reigning on such heights produce in every mind, the savage views such scenes with super-

stitious dread. To him the mountains are peopled with mysterious and misshapen animals; the black points, which he sees from afar in the dazzling snow, are fierce and monstrous birds; a supernatural spirit breathes on him in the evening breeze, or is heard in the rolling of a loose stone. It is this imaginative superstition which gives birth to the poetry of infant nations, as we see in the old tales of the Germans, which evidently have their origin in the earliest ages of the race, and bear the impress of the ethics and religion of a people not yet emerged from barbarism; but with the Polynesians these fears lead to gross superstition, witchcraft, and the worship of demons. My native attendants would not go any farther, not only on account of their superstitious fears, but because, from the intensity of the cold, their uncovered feet had already suffered severely. I started, therefore, for the summit, accompanied by Heberley alone. The slope of the snow was very steep, and we had to cut steps in it, as it was frozen on the surface. Higher up we found some support in large pieces of rugged scoriæ, which, however, increased the danger of the ascent, as they obstructed our path, which lay along a narrow ridge, while on both sides yawned an abyss filled with snow. However, we at length reached the summit, and found that it consisted of a field of snow about a square mile in extent. Some protruding blocks of scoriæ, of a reddish-brown colour, and here and there slightly vitrified on the surface, in-

dicated the former existence of an active volcano. A most extensive view opened before us, and our eye followed the line of coast towards Kawia and Waikato. The country over which we looked was but slightly elevated; here and there broken, or with irregular ramifications of low hills, towards the snowy group of the Ruapahu in the interior, which bore N. 60° W. I had just time to look towards Cook's Straits and distinguish Entry Island, when a dense fog enveloped us, and prevented all further view. Whilst waiting in the hope that the fog would disperse, I tried the temperature of boiling-water with one of Newman's thermometers, and found it to be 197°, the temperature of the air being 49°, which, taking 55° as the mean of the temperatures at the summit and the base, would give 8839 feet as the height of Mount Egmont; the whole calculated according to the tables given in an article published in the London 'Geographical Journal,' vol. viii., and communicated by Lieutenant-Colonel W. H. Sykes, F.R.S.

I have above mentioned that the cone, forming the summit of Mount Egmont, rises from a platform. The cone of cinders and scoriaceous lava is separated from this platform by a deep saddle, which descends laterally towards the sides of the mountain. The high rocky walls, near the source of the Waiwakaio, show the composition of the *exterior* cone to be a hard lava of a bluish-grey colour, which resounds to the hammer like phonolite or clink-

stone, and breaks into large tabular fragments. The wall where this rock is seen is fissured in a perpendicular direction. There seems to be a great scarcity of simple minerals in the principal rock of which this mountain consists.

The natives have no historical account of any eruption of Mount Egmont, and maintain that the country at its base is less subject to movements of the earth than other parts of the islands, especially those which are the most mountainous. They have, indeed, tales which, if divested of their figurative dress, might be referred to the recollection of former volcanic activity: such is their account that the Tongariro and Mount Taranaki are brother and sister, and formerly lived together, but quarrelled and separated.

The branches or buttresses which Mount Egmont throws out towards the sea-coast and to the interior being of inferior height, the cone itself appears to be very isolated. A ridge of hills runs towards Cape Egmont; another, that on which we made the ascent, goes to the north-east-by-east, and a third towards the interior, in the direction of the Ruapahu and the still active volcano of Tongariro.

On the summit of the mountain I found the entire skeleton of a rat, carried there, no doubt, by a hawk.

After staying for some time on the summit, in the vain hope that the clouds which enveloped us would disperse, we retraced our steps, and accomplished the

descent with comparative ease. The natives expressed their joy at seeing us again, as they had already given us up as lost. We encamped on the bank of the left branch of the Waiwakaio amidst trees of the Leptospermum species. Our resting-place—which, from finding the boiling-point to be 207° Fahrenheit, while the mean temperature of the air was 57°, I calculated to be 2699 feet above the level of the sea—was the utmost limit of the excursions of the natives: at this spot they obtain the best sort of kokowai in the bed of the river, which was for some distance quite yellow from a solution in its waters of this ochreous substance, which glazed the rocks with a metallic coating. Immediately on our arrival our native companions set to work to make baskets of rushes and flax-leaves, for the carriage of this muddy ochre, which they dug out from swamps formed by the Waiwakaio at its banks. This substance was afterwards slowly dried at the fire, and, by further burning and preparing, a fine vermilion was obtained, which they carried home as an acceptable present to their families. This ochre is formed in great quantities in many places of New Zealand, where water has become stagnant, and is constantly deposited either from the iron contained in vegetables or from the ferruginous soil. I have often seen the natives forming weirs at stagnant creeks in order to obtain it. They use it for many purposes: when mixed with shark's oil, it forms a durable paint for their houses, canoes, and

burying-places; it is also universally in request to rub into their faces and bodies. The custom of besmearing the body in this manner is common to almost all barbarous nations, and is adopted for objects widely differing. When going to battle, the savage bedaubs himself in order to strike terror and fear into the heart of his enemy; when joining in the funeral ceremonies or the festivities of his tribe, he employs the same means to increase the beauty of his appearance: the custom of covering themselves with a thick coating of this substance at the death of a relation or of a friend may have a symbolical meaning, reminding them of the earth from which they have sprung, and is similar to the practice prevailing among Oriental nations of mourners heaping ashes on their heads. The New Zealander also regards this pigment as a good defence against the troublesome sandflies and musquittos. Whether it is the cause of the sleekness of the skin for which the natives are so remarkable, I will not pretend to say; as this may be owing to their frequent bathing and continual exposure to the air, or, which is still more probable, may be a characteristic feature of the Polynesian and other coloured races, in consequence of a greater development of the vascular papillæ between the epidermis and cutis than is the case with the white or Caucasian races.

But to return from this long digression. The Waiwakaio was at this point confined between high walls overshaded by trees; here and there

large masses of the perpendicular cliffs had fallen down and obstructed the bed of the river. In future times this picturesque valley, as well as Mount Egmont and the smiling open land at its base, will become as celebrated for their beauty as the Bay of Naples, and will attract travellers from all parts of the globe.

On the 28th of December we again reached the beach without accident, and with somewhat better reason to be satisfied with our success than on our last return. I found a large number of natives at Nga Motu from the Otumatua and Waimate, assembled for the purpose of selling the whole Taranaki district. As the return of the Tory was daily expected, the beach looked as if a fair was being held on it. A European also had arrived from Kawia, accompanied by many natives, for the purpose of dissuading those at Taranaki from ceding to the Company their territorial rights; not, however, from any disinterested intention, or for the sake of the Taranaki natives, but because some parties were anxious to buy the land for themselves, either from the small remaining body of the original native proprietors, or, if they would not agree to the terms proposed, from their conquerors, the Waikato tribes. It was said that the missionaries were much concerned in these transactions.

On the 31st I started in the boat for the Waitara, which is eight miles to the northward of the Sugarloaf Islands. This river has a bar at the entrance, over

which there is only five feet of water at low tide, but inside the bar it deepens considerably, and two miles from its mouth I found the depth to be two fathoms and a half. The Waitara does not take its rise in Mount Egmont, but comes from a hilly range which runs from Tongariro in a south-westerly direction, and is called Rangitoto. It flows through a fertile and open country. About twelve miles from its mouth, and situated on the left bank, was formerly a large and prosperous village, called Puke-rangi-ora, peopled with 1500 of the Nga-te-awa tribes. About ten years ago it was taken, after a long siege, by the Waikato, and nearly 500 of the inhabitants were slaughtered, fifty of them by the hand of Te-wero-wero, who is at present a great "Mihanere" (as the natives call those who have adopted Christianity, from the word missionary), and lives at Waitemata or Manukao; the rest of the population was carried away into slavery. There are no natives here at present, nor is there any trace of the path which formerly led from Puke-rangi-ora round the base of Mount Egmont to the districts in Cook's Straits.

I returned in the evening delighted with the general aspect of the country.

We were now in the middle of summer; the weather was very agreeable; the thermometer in the afternoon stood in the shade at 86°, rising to 100° in the sun, and generally falling in the evening to 62°. But I must observe that we were living amidst the

sand-hills of the coast, which were often so much heated that I could not bear to walk upon them. But we were never a week without rain, and sometimes had a thunder-storm, after which a delightful coolness pervaded the atmosphere. The rivulets always retained their quantity of water; the humidity in the forest rarely ceased; and the mosses and ferns continued as fresh as ever. Fishing was attended with great success, and I often had occasion to admire the expertness of the women in diving for crawfish in the surf near the Sugarloaf Islands. The New Zealanders, men, women, and children, swim well, and can continue the exertion for a long time; in common with the North American Indians, they swim like dogs, not dividing the water, as we do, with the palm of the hands, but paddling along with each arm alternately. Bathing was one of our favourite amusements, as there was a beautiful pond of fresh water immediately behind our hut, and great was the mirth and good fellowship at our daily bathing-parties.

In the beginning of January two messengers of the Nga-te-awa tribe, who had been enslaved by the Waikato, arrived from Kawia: they brought intelligence that the Nga-te-raukaua had sent to the Waikato to request their aid in an exterminating warfare against the Nga-te-awa tribe in Waikanahi, in revenge for their losses there. They also told us that the Waikato were prepared to make an immediate descent on us, in order to prevent the natives of Taranaki from

selling any of the land, which they regarded as their property. In consequence of this information we prepared for defence, in case a tribe of the Waikato should attack us during the night, although I did not think that our party had anything to fear. It was impossible to sleep, as the natives talked all night as to the possible result of a conflict with the Waikato. On the following morning they advised us to shift our habitation to Motu-roa, the largest of the Sugarloaf Islands, and to take all the women and children with us. The men resolved to remain on the mainland opposite the island, and to provide us with necessaries: if the Waikato should make a descent, they might thus more easily resist, or fly towards the mountain. We followed their advice, and lived on Motu-roa during the rest of our stay, as we daily expected the arrival of the Tory. This island is a conical rock, extremely steep, about one mile in circumference and 500 feet high; the formation is trachyte. The rock contains much augite and felspar, and includes here and there fragments of a different formation. The augite appears often in nests; and micaceous iron-ore occurs in thin veins. The summit was scarcely accessible, but the native women, with their children on their backs, walked up and down the hill, and along steep precipices, with the utmost unconcern. From time immemorial Motu-roa has been a place of refuge and security for the Nga-te-awa tribes, but more so of late, since the departure of the greater portion of them. Wher-

ever there was a platform, or level space on the rock, they had built dwelling-houses and stores, in which they kept wood and provisions. In case of an attack, they could, if watchful, easily keep off an enemy. We took possession of a good house on the north-west side of the island, about 190 feet above the water, and placed in a dry niche, with the rock over-hanging it. The vegetation of the island is confined to flax, cabbage, and parsley, which grow in the interstices of the rock.

CHAPTER VIII.

District from Taranaki to Mokau.

On the 10th I started on an excursion to Mokau, situated three days' journey from the Sugarloaves, in order to visit a large tribe of the Waikato living there. The son of the chief of that tribe, who had come to Taranaki a few days before, accompanied me as a guide. On the hard sandy beach which lies to the northward of the Sugarloaf Islands we passed the Huatoki, the Enui, and the Waiwakaio rivers. The escarpment of the coast shows here volcanic boulders, kept together by a yellow loam. This formation is covered with sand. From the Waiwakaio to the river Mimi the shore consists of sandy downs. We passed the latter river at low water. At its right bank is an escarpment, which consists entirely of sharp-edged volcanic fragments. A whale was lying on the beach, which seemed to have been stranded a few days before. An enormous quantity of drift-wood was imbedded in the sand, intermixed with human bones, probably the remains of the cannibal feasts held during the siege of Puke-rangi-ora. We slept on the banks of the Waitara river, after having passed several smaller streams.

From this point the sea-shore becomes elevated; the cliffs consisting of a stiff blue clay, with a formation of yellow loam above it. We travelled, for the greater part of our route, over fertile fern-hills, with beautiful groves of trees. The vegetation continued down to the water's edge.

We passed the rivers Oneiro and Urenui; the latter flowed with a sluggish stream through a deep bed of white mud. After we had crossed this river we heard voices at a distance, and soon came up with a European, who had been sent by the Wesleyan Missionary in Kawia, and was travelling for missionary objects to the southward. With him was a large party of Waikato natives, and also men, women, and children belonging to the tribe of the Nga-te-awa at the Sugarloaf Islands. They had been taken slaves in the last war, and had been obliged to live at Kawia; but now their masters had allowed them to go to Taranaki, for the purpose of paying a visit. They saluted us very heartily, rubbing noses and shaking hands; and an old woman soon began a lamentation over me. I found out that she was the mother of Barret's wife. The undisguised joy and sorrow which she expressed when I told her of the fortunes or trials of her daughter and grandchildren showed me once more how equally Nature has distributed amongst the whole of the human family the kindly affections of the heart, which are not the privilege of any one

race or colour, nor increased by civilization, which indeed too often blunts and destroys them.

The country near the sea-coast bears, in many places, the traces of former extensive native cultivation, and the ruins of several pas. Here formerly lived the Nga-te-toma and Nga-te-Motunga tribes, the present inhabitants of the Chatham Islands, who migrated there many years ago. The whole district between Taranaki and Mokau has not at present a single inhabitant, although one of the most favoured districts of New Zealand. Near the Urenui river we again reached the sea-shore; the cliffs were here about a hundred feet high; the lowest formation was a marly clay. About twenty feet above the level of the sea was a formation of wood, very little altered or carbonized, and ten feet in thickness, but irregular: above that was a loamy soil. From the lowest formation I dug out a quantity of protophosphate of iron; it is found in small pieces or balls, is of an earthy consistence, and of a pale-blue colour; the natives call it puke-poto, and when freed from the earthy particles and washed it is highly esteemed as paint. A little farther on the shore becomes very picturesque; it consists of a micaceous, soft, yellowish sandstone, which the waves of the sea have worn into the most fantastic shapes; sometimes it resembles the wall of a fort with round towers, and surrounded by balconies, crowned with beautiful shrubs. In some parts, and

at one particular level, large boulders of trap-rock protruded out of the wall, the soft mixture in which they had been deposited having been washed away; in fact, the whole shore had the appearance of having been artificially cut out. This formation extended as far as Mokau, which place we reached the following day. My arrival was espied from the first pa, which is built on a hill near the outlet of the river. I was welcomed with a salute of musketry, and conducted in the midst of the assembled chiefs, who were dressed in their best attire. The sale of lands, and the colonization of the country by Europeans, engrossed their whole attention, and formed the subject of our interview. On the following day we went several miles up the river, and visited some other pas, which were numerously inhabited; we were everywhere received with the most studied attention. Disunion had, however, been spread amongst them by the arrival of some native missionaries, sent from the Wesleyan establishment at Kawia. The larger and more respectable part of the little community were not well inclined to them, as an idea prevailed that the missionaries sought to convert them only with a view to their own aggrandizement.

These natives, which are a subdivision of the tribe of the Waikato, and are called Nga-te-Meniopoto, seem to be in very prosperous circumstances. The river Mokau, which takes its rise in the mountains of Rangitoto, a hilly range running near the western

coast, flows through a very fertile and moderately hilly district. On its banks are well-cultivated spots, bearing potatoes, maize, melons, and taro; the natives were also growing a great proportion of the tobacco that they consumed in the year. Flax covers extensive districts; and the industry formerly displayed in manufacturing mats has not yet entirely disappeared. Their settlement never having been reached by European visitors or ships, these natives had retained their unsophisticated virtues. They sometimes, indeed, have come in contact with Europeans at Kawia, where they exchange their pigs for foreign commodities. A brig once entered the river, and from the general aspect it appeared to me as if there was sufficient depth over the bar for vessels of moderate burden, at all events for steamers. Inside the bar I sounded, and found three fathoms: according to the natives, there is one fathom and a half over the bar at low-water. Inside the headlands the river takes a sharp turn, and forms a deep and completely sheltered basin.

I returned to Taranaki accompanied by the principal chiefs of Mokau, and greatly satisfied with the reception they had given me, and reached the Sugar-loaf Islands after an absence of eight days.

After we had waited a great length of time for the return of the Tory, a brig, the Guide, arrived on the 31st January, having on board some gentlemen belonging to the Tory, and bringing the intelligence that she was refitting at Kaipara, hav-

ing grounded on the bar at the entrance to that harbour. This news relieved us from the anxiety which we had felt as to the possibility of securing the Taranaki district for the New Zealand Company; as since my arrival churchmen and laymen had vied with each other to obtain possession of that district. On the arrival of the Guide a liberal price was given to the natives for their land, and the good will of the Waikato purchased by presents. Thus the New Zealand Company became proprietors of the finest district in New Zealand, which offers to the colonist, besides its natural resources, the advantage of there being no natives on the land, with the exception of the small remnant of the Nga-te-awa tribe at Nga-Motu.

Since the above was written the settlement of New Plymouth has been established at Nga-Motu, or Sugarloaf Point, which must be prosperous even without a harbour, which is wanting there, as it possesses cultivable land, extensive facilities of land communication both with Cook's Straits and along the coast to Mokau and Kawia, and, as I can state from my own experience, a very delightful climate.

On the 16th of February we left the roadstead of Taranaki, and arrived again in Port Nicholson on the 21st.

CHAPTER IX.

On the Climate of Cook's Straits and New Zealand in general.

In preparing these few remarks on the climate, I have had before me a nearly complete series of meteorological observations, made at Port Nicholson, taken daily at 8 A.M., at noon, and at 5 P.M., and recording the temperature and pressure of the air, the quantity of rain, the winds, and the general state of the weather during an entire year. The observations on temperature were not made with the self-registering thermometer, and therefore do not comprise the greatest degree of heat or of cold: this, however, is of little consequence. The deductions derived from the observations made at Port Nicholson will apply to the whole of New Zealand, but not without great restrictions, as it is obvious that marked differences must exist in a country extending through nearly thirteen degrees of latitude, and in which there are central and coast positions, hills covered with forest, and mountains reaching above the limits of perpetual congelation. It must also be observed that the year in which the observations were made was a very wet one, according to the testimony of the old settlers.

New Zealand, being situated within the temperate zone, although nearer to the equator than Great Britain, possesses, from its peculiar geographical position, especially from its being insular, and also from the nature of its surface, a climate so modified as to resemble that of England more nearly than that of any other country I am acquainted with. It is moderate in every respect, the range of its temperature throughout the year and during the day being very inconsiderable. This is principally owing to the immense expanse of ocean which surrounds these narrow islands on all sides, preserving a temperature little varying, and moderating alike the cold of the antarctic regions and the heat of the tropics. The continent of Australia—for as such we must regard it—is too distant to affect the climate, which it would undoubtedly do if it were nearer, as New Zealand would then receive an air heated in its passage over the vast plains of Australia, which extend far within the tropics. In like manner the southerly winds, which, although at all times the coldest, as coming from a polar *terra firma* surrounded by eternal ice, are greatly tempered by the intervening ocean. If, instead of the latter, a continent extended to within a little distance of New Zealand, as Europe and Asia do with reference to England, it would produce all the phenomena of climate in which we observe England to differ from New Zealand, such as the greater cold in winter and during certain winds.

The east coast, on which Wellington, Auckland, and the Bay of Islands are situated, is colder than the western, where the settlements of Nelson and New Plymouth have been founded, and where the air is far softer and milder. I ascertained this by actual comparisons, and in this respect the western coast must have great advantages over the eastern. In the interior of the islands the climate is colder and less changeable, in consequence of the presence of a snow-clad mountain-group and the greater distance from the ocean. I found at Taupo the acacias of Van Diemen's Land, the Ricinus palma Christi, and potatoes, affected by the frost—a circumstance which never happens near the coast; the leaves also of several trees had become yellow and deciduous; the landscape assumed an autumnal tint, although it can scarcely be said ever to have had a wintry appearance. At Wellington, on the contrary, and along the whole coast, the natives plant their potatoes at all seasons of the year, the forest remains evergreen, and the opening of the flower-buds is merely a little retarded during the season of winter, the presence of which is only indicated by more frequent rains and winds.

Owing to the continual interchange which takes place between the heated air of the equator and the cold air of the antarctic regions, an almost continual wind is kept up, which blows either from the north and the north-west, or from the south and the south-east. Out of 365 days—the entire year

—there were only twelve which could be called calm days; during 213 it blew from the north or north-west, and during 119 from the south or south-east. It is difficult to say which wind is the most violent: the south-east winds are very strong, but the most severe gales which I experienced were from the north-west. During the winter months the latter prevail; but when the sun has a southern declination southerly winds blow, in consequence of the greater degree to which the air is heated under the equator, and the current of cold air which rushes in from the south to replace it. These winds have a very beneficial effect upon the climate: no sooner is mist or fog formed than they dispel it, and thus purify the atmosphere, and prevent the collection of obnoxious exhalations; they produce also the remarkable feature of the continual chasing of clouds, and sudden alternations of rain and sunshine, which follow each other in far more rapid succession than is ever experienced in England, which has been so unjustly accused of having the most changeable weather in the world. In this respect, also, the western coast is less affected than the eastern; a violent gale has been known to blow at Wellington when there was fine weather and only light winds at Nelson.

New Zealand possesses a humid and moist climate. If we consider the immense oceanic surface which surrounds it on all sides, and from which a con-

tinual evaporation of watery particles proceeds, and is taken up by the air, we shall readily anticipate that the atmosphere must be almost constantly at or near the point of saturation, and that when any change of temperature takes place the moisture will at once be condensed and fall in the form of rain. The wood-covered hills and the forest-lands, which constitute the greater part of New Zealand, attract this humidity, and render rains more frequent than they would perhaps be if the land were cleared. It rains in New Zealand during all the months of the year, but the greater quantity falls in winter and spring, when there is also the greatest number of rainy days. At Port Nicholson the quantity of rain from April, 1841, to February, 1842, was 34·49 inches. The quantity of rain which falls annually at London is only 23·1 inches, according to the results given by Mr. Daniell; while in the Hebrides the amount is nearly twice as large, ranging from 35 to 46 inches. Without pronouncing a decided opinion from a single series of observations, and these taken at only one place, and during ten months, I may, I think, safely draw the conclusion that New Zealand has a rainy climate, and may be ranked, in this respect, with several places in England. The quantity of rain was distributed over the months in the following manner:—

	Ins.		Ins.
February, 1841 . .		August . . .	4·56
March . . .		September . .	4·51
April . . .	1·86	October . . .	2·31
May . . .	3·71	November . . .	2·95
June . . .	4·12	December . . .	5·47
July . . .	3·84	January, 1842 . .	1·16

This quantity fell in 133 days, which were distributed thus:—

	Days.		Days.
February . . .		August . . .	14
March . . .		September . .	14
April	9	October . . .	16
May	11	November . . .	14
June	18	December . . .	15
July	17	January . . .	5

The dews are particularly heavy during the winter months, when the surface of the earth is colder, in comparison to the surrounding atmosphere, than in the other months. In the interior, where there exists a long line of lakes, fogs rest upon them in the mornings, and also upon the river-courses, especially on that of the Waikato and Thames, but they are dispelled by the sun when it has risen some degrees above the horizon, or are driven away by the winds.

This great quantity of moisture accounts for the vegetation being so vigorous, even in those places where only a thin layer of vegetable earth covers the rocks. Sandy places, which in any other country would be quite barren, are covered with herbage in New Zealand; and the hills, which in lithological and geological formation resemble those of Devon-

shire, may, in the course of time, be converted into pastures at least equalling those on the hilly portion of that county. Everywhere also trees and shrubs grow to the margin of the sea, and suffer no harm even from the salt spray. The humidity of New Zealand is not considered to have much injurious effect on animal life. Cattle and horses are in as good a condition as can be expected from the present scantiness of grass pastures: should they, however, be found to suffer from the moisture, the cattle can at all times be driven from the valleys up to the hills, where the drainage renders the ground sufficiently dry. I much doubt whether as good a report can be given regarding sheep, which always seemed to suffer from wet, as well as from want of suitable food; and it cannot be denied that this moisture, with all its beneficial influence on the vegetation of the country—which includes the tree-ferns, generally confined to the tropics, and a species of palm—will be injurious to those fruits which are claimed as the ornaments, and almost as the symbols, of southern Europe,—to the olive, the vine, and the orange; and that New Zealand does not rank higher in this respect than the south of England. The humidity will also, it is to be feared, be injurious to the silkworm.

The physical configuration of New Zealand, and the geological formation of the hills, are in general such that the rain is rapidly carried towards the coast in countless streams and rivulets: the lakes,

with which the interior of the northern island abounds, have always an outlet; and it is only in a very few places that swamps exist, and these are owing to the clayey nature of the subsoil, but they are not sufficiently important to influence the general state of the humidity of the air, or to become insalubrious. In the neighbourhood of Port Nicholson the rain quickly percolates through the light upper soil, and feeds the numerous streamlets, which rapidly carry it off into the sea.

The temperature which, from its latitude, we should expect New Zealand to possess, is extensively modified by all the circumstances I have mentioned. The first of these is the narrow shape of both islands, which gives a very extensive coast-line, into the numberless harbours and inlets of which the sea enters; and as it preserves a certain mean and moderate temperature throughout the year, it modifies the climate of land which is surrounded by it, and uniformity of temperature is in consequence characteristic of the climate of New Zealand. It is most humid, as well as most equable, on the coasts, where also vegetation is fresher than in any other portion of the islands; there is no great heat in summer, no severe cold in winter; sometimes, indeed, in the winter nights the thermometer sinks to the freezing-point, and the stagnant waters in the interior are covered with a thin crust of ice; but during the day it is very rare that the temperature is below 40°. In a moderately convenient house

fire could be dispensed with throughout the year, but the habit of having a fire every evening, summer and winter, may very easily be acquired.

The mean temperature of July—the coldest month—was at Wellington only 48·7°; the greatest cold during the day was 38°; the greatest warmth 57°. On the other hand, in January—the warmest month—the mean temperature was 66·4°; the highest 76·5°; and the lowest 57°. The mean temperature of the whole year was at Wellington 58·2°, and the mean temperature of the different months was as follows:—

	Deg.		Deg.
January . . .	66·4	July . . .	48·7
February . . .	64·8	August . . .	51·2
March . . .	62·5	September . . .	53·5
April . . .	63·5	October . . .	59·2
May . . .	51·8	November . . .	60·5
June . . .	51·3	December . . .	64·7

From the foregoing details it will be understood why I do not consider the climate of New Zealand much suited to the vine; 58·2°, it is true, is a mean temperature sufficiently high for a country required for ripening the grape; but the mean of the three summer months, 65·2°, is too low, as a mean summer heat of at least 66·2° is necessary for a wine country. The mean temperature of the winter months was not lower than 50·7°: in fact, the climate is not sufficiently excessive; the winters are too moderately cold, the summers too moderately warm; nor must we forget that there were twenty rainy

days in the summer months of December and January, which is likewise prejudicial to the growth of the grape. These remarks are drawn from observations made at Wellington. But in that place, from its peculiar position, the temperature is lower than at other places, for instance, than at Nelson and New Plymouth. In the latter place I often found the thermometer as high as 86° in the shade, nearly 10° higher than it ever was at Wellington.

The Valley of the Hutt is exposed to the south winds, but Nelson is perfectly sheltered from them by the high mountains of the Middle Island, whilst it lies open to the balmy winds and warm rains from the north.

The latitude also must exercise a great influence, as I have already observed, so that many modifications must be made in the conclusions above given.

The climate of a country has undoubtedly very great influence on the physical and intellectual conditions of its inhabitants; we therefore naturally inquire—How does New Zealand agree with the human frame? Is the climate salubrious? To what diseases does it give rise? When might it be recommended? As the atmosphere, by its moderate warmth, its humidity, and constant current, is peculiarly favourable to the vegetative powers, as we see in the luxuriant growth of plants, so from the same causes it suits the human frame. In the families of the missionaries and settlers I observed no deviation from the original stock; the children grow well and strong,

with fresh and rosy faces, and I am satisfied that in this respect New Zealand is in no way inferior to Great Britain. A humid and temperate atmosphere acts especially upon production, both as it regards growth of the body and the numerical strength of families. Nutrition and reproduction are in good order: in respect to the numerical strength of families, the climate seems to be particularly favourable to the increase of population; at least, all the Europeans have large families. We see the effect of this humid climate in certain diseases, to which Europeans, first arriving in this country, are often subjected. These are abscesses, or boils, and eruptive diseases, neither, however, of a malignant character, and both disappearing without medical aid. Amongst the natives carbuncles and diseases of the mucous membranes are common: here, however, other causes are acting, of which I shall speak more hereafter. The European, when once acclimatised, does not suffer from any of these causes. True inflammatory diseases are uncommon: the south-east wind of New Zealand is never as keen as our north-easter; but, in consequence of the moist climate, such diseases always assume the character of catarrh. I am not aware that any endemic diseases exist in New Zealand; influenza, however, and sometimes croup, appear epidemically. If care is not taken, rheumatisms also make their appearance; but it is certain that causes which, in England, would produce violent colds, and other injurious results, pass over in

New Zealand without any bad effect, even to those colonists who are in delicate health.

The purity of the atmosphere, resulting from the continual wind, imparts to the climate a vigour which gives elasticity to the physical powers and to the mind. Heat never debilitates, not even so much as a hot summer's day in England; and near the coasts especially there is always a cooling and refreshing breeze. The colonist who occupies himself with agriculture can work all day, and the mechanic will not feel any lassitude whether he works in or out of doors.

From all this I draw the conclusion, that as regards climate no country is better suited for a colony of the Anglo-Saxon race than New Zealand; and were this its only recommendation, it would still deserve our utmost attention, as the future seat of European civilization and institutions in the southern hemisphere, since in the other southern colonies—for instance, in that of New South Wales—Europeans undergo more or less alterations from the original stock.

Invalids rapidly recover in this climate, and there is no doubt that the presence of numerous thermal waters in the island, and the attractive scenery, will make New Zealand the resort of those who have been debilitated in India, and are in search of health.

I subjoin in a tabular form the results of the meteorological observations at Port Nicholson.

Meteorological Table taken from a Register kept at Wellington in New Zealand, from February, 1841, to January, 1842.

Month.	Corresponding to our	Greatest Heat.	Lowest Heat.	Mean of the Month.	Daily average Range.	Lowest Barometer.	Highest Barometer.	Mean Pressure of the Air.	Quantity of Rain in Inches.	Greatest Quantity of Rain in 24 Hours.	Number of Rainy Days.	Winds.	
												N.&N.W.	S. & S. E.
1841.	1841.	°	°	°	°							Days.	Days.
February	August .	76	53	64·8	4	..	..	..	..	..	..	8	20
March .	September	73	57	62·5	3·5	..	..	..	..	..	..	18	13
April . .	October .	70	43	63·5	6·7	..	..	..	1·86	·75	9	13	4
May . .	November	65	39	51·8	5·3	29·605	30·522	30·028	3·71	1·24	11	17	13
June . .	December	58	39	51·3	5·7	29·031	30·424	28·202	4·12	1·41	18	13	12
	1842.												
July . .	January.	57	38	48·7	5·7	29·292	30·450	29·090	3·84	·91	17	19	11
August .	February .	60	37	51·2	4·6	29·324	30·550	29·104	4·56	1·22	14	19	9
September	March .	63	43	53·5	4·4	29·350	30·484	29·783	4·51	2·25	14	17	10
October .	April . .	66	45·5	59·2	4·3	29·508	30·312	29·867	2·31	·36	16	23	7
November	May . .	69·5	53	60·5	3·3	29·316	30·472	29·800	2·95	·78	14	19	11
December	June . .	69·5	54	64·7	3·2	29·030	30·376	30·318	5·47	·60	15	20	11
1842.													
January.	July . .	76·5	57	66·4	4·8	29·030	30·376	30·318	1·16	·60	5	18	20

Mean annual temperature 58·2°.
Mean annual range 4·6°.
Quantity of rain in 10 months, 34·49 inches.

Number of rainy days in 10 months, 133.
Number of days on which the wind was from the N. or N.W., 202 days.
Ditto ditto from the S. or S.E., 141 days.

CHAPTER X.

General Considerations on Cook's Straits.

THE existence of a strait, which separates two long and narrow islands, extending for 800 miles, from the thirty-fourth to the forty-eighth degree of south latitude, is a geographical feature which early attracted the attention of those who wished to colonize New Zealand. Queen Charlotte's Sound was the favourite resort of the justly-celebrated Captain Cook, and, many as were the countries which he visited, he certainly could not have selected in any of them a more sheltered or convenient harbour. Here he procured in abundance—what he most needed—water, wood, and fish; he also availed himself of some of the indigenous vegetables for the purpose of refreshing his crew and improving their health. His name is gratefully remembered by the natives, to whom he left those things which now form the principal articles of their trading intercourse with the Europeans, namely, pigs and potatoes; the cabbage, which he sowed, has spread over all the open places in Cook's Straits, and early in spring the sides of the hills are covered with its yellow flowers.

These straits offer more secure, convenient, and

capacious harbours than are to be met with on any other coast of similar extent. The country around the harbours consists principally of steep hills clothed with forest from the water's edge to their summit. The formation of these hills, a metamorphic slate and basalt, or Lydian stone, does not form a very favourable substratum to the thin layer of vegetable earth which covers them. The natives, therefore, choose for cultivation the very small extent of flat land found in the little coves and bays which the coast forms in innumerable places, and which are less wooded; or they choose still more frequently the bottom of ravines, where they destroy the forest by fire, leaving the unconsumed stems of the trees to decay naturally. Here the fertile earth is in greater abundance, and a never-failing crop of maize, potatoes, taro, turnips, cabbage, sweet potatoes, or pumpkins, recompenses their labour. In that part of the island a European population must therefore be satisfied to pursue the same system as the natives have done, namely, to disperse themselves in small communities over those little bays, and rear the necessaries of life, without other labour than their own, and gradually to work their way up the ravines, bringing them to such a state as to bear a low herbage of grass and clover on which to feed sheep and cattle. The island of Mana has been thus converted into sheep pasture; but I am certainly of opinion that here sheep should be reared chiefly for their carcase, as the country is not favourable to the

growth of the wool. Goats, asses, and mules seem to be more adapted to this part of the country than the rest of the domestic animals. All those plants which are natives of England can be produced here, but not the natives of warmer climates. I have already expressed a doubt whether the products of the south of France would succeed, as, for instance, the olive, the vine, and the mulberry, although it has been frequently asserted that they would.

A *squatting* population, therefore, living apart from each other, but connected by a safe water communication, are the best pioneers for a colonization of that part of Cook's Straits. Shipbuilders also should choose a position in Queen Charlotte's Sound where they can command a great variety of useful timber.

It was a common impression that through the centre of the Middle Island there was a mountainous ridge rising above the limits of perpetual snow, and falling off towards the coast on both sides, leaving but little land for an agricultural population. From the concurrent testimony, however, of some Europeans and of the natives, I have reason to believe that the Middle Island has a configuration similar to the Northern; that its mountains form coast-ridges, which leave a sort of table-land in the interior, although from the narrowness of the island this cannot be of great extent. On the western coast these hills approach very near the shore, being broken however in places, and forming some conve-

nient harbours; they contain anthracitic coal and limestone, and bear a variety of timber, of which I must especially mention a new species of the parsley-leafed pine (Phyllocladus trichomanoides), which the natives call E Hutu, to distinguish it from the tanekaha, another species of the same genus. On the eastern coast the hills in several places are of a more gradual slope, like those in the Bay of Plenty, and forming a rich field for colonial enterprise. Around Queen Charlotte's Sound and Cloudy Bay there is a knot of these hills, but the interior table-land opens towards Blind Bay, and also towards Wairoa in Cloudy Bay. Thus, it appears that the situation of Nelson in Blind Bay is the happiest which could have been chosen in Cook's Straits for opening a communication with the interior, and also for securing a sufficient extent of back country for an import and export trade.

In the northern island, as far as regards the parts bordering on Cook's Straits, the aspect is somewhat different. From the part nearly opposite Entry Island to Cape Egmont, and thence to the northward, a belt of undulating land runs along the sea-coast, increasing in breadth towards Mount Egmont; whilst that mountain rises imposingly with a very gradual slope from the sea-coast, from which it is distant thirty miles. The land here consists, as I have already mentioned, of aqueous strata, which have a comparatively even surface, and which owe their origin to the rise of the volcanic

cone of Taranaki. This belt of land consists of light sandy soil near the sea-coast, not wooded, but capable of cultivation. This open land is three or four miles in breadth, at which distance from the sea the wood begins, and the soil becomes more substantial and rich. Fern and flax, which usually characterise the vegetation of open districts in New Zealand, are also found here, but are intermixed with some juicy shrubs, plants, and also some species of grass. Cattle and horses, if allowed a wide range, would find sufficient food, although it cannot properly be called a grazing district.

Many rivers discharge themselves into Cook's Straits. Their number is indeed so great, from Port Nicholson along the western coast, that they constitute a feature peculiar to New Zealand. None of these rivers can admit ships of the largest tonnage, but several are navigable for vessels of moderate burden, and offer great facilities for internal communications. The Manawatu, the Wanganui, the Patea, and the Mokau are the most important of them. The harbours connected with this district, and fitted to receive the larger vessels, are Port Nicholson and Kawia; the former is by far the best. The prosperity of Wellington, which is situated at Port Nicholson, and is the capital of the New Zealand Company, depends chiefly on the agricultural resources of this district, upon the early construction of roads to connect it with the town, and upon the employment of steam-boats drawing little

water for the navigation of the rivers. These two latter requisites are essential for raising contemporaneously the prosperity of country and town. I should recommend the colonist who has but little capital to select the country rather than the town, as around Wellington there is no great extent of available land, and its prosperity must be deferred until it is enabled, by the produce of the agricultural districts, to exist as a commercial port. It must be expected that the rise of the colonies in Cook's Straits will be slow, although progressive, and that embarking capital in *agricultural* pursuits will most securely and most immediately yield the greatest advantages.

CHAPTER XI.

The Natives inhabiting the Shores of Cook's Straits.

THE natives inhabiting both shores of Cook's Straits were at the time of my arrival placed in a position which could not fail to awaken my deepest interest. Although their number is not large, taking them as a whole, yet they live so much dispersed in small tribes that they occupy a long coast-line. For the last fifteen or twenty years they have associated with Europeans, who have lived amongst them as traders or as whalers; and they were annually visited by many whaling-vessels. Mutual advantage, and the connection of almost all these Europeans with native women, from which connection a healthy and fine-looking half-caste race has sprung up (about 160 in number), kept the white men and natives in harmony with each other, and has cemented their union. Thus we find Europeans arrayed against Europeans in the combats of the different tribes amongst whom they lived, or emigrating with them to another locality, or following the hazardous chase of the whale with a crew of natives. When dead they were bewailed as brothers by these sons of nature, and a painted canoe erected as an ornament

over their graves. Many runaway convicts from New South Wales and Australia were amongst these irregular settlers, many of whom were men of desperate character. The society was a curious motley of men of all nations and colours, who had lived an adventurous life from their childhood; yet, with all these elements of vice among them, the natives had preserved many of their good qualities; and the colonists of the Company found them better prepared to acknowledge a more regulated state of society, and to acquiesce in present sacrifices with a view to their future benefit, than was the case with the natives in the more northern parts of the island, although missionaries had lived among them during a long period. None of these missionaries have paid Cook's Straits more than a passing visit, yet many of the natives were initiated into the tenets of Christianity, and could read and write, having learned these arts from mutual instruction. The zeal of these new proselytes went so far as often to cause me annoyance.

Many changes have taken place amongst the inhabitants of Cook's Straits during the last thirty years. Several tribes have disappeared, or have emigrated to more distant places, in consequence of war. The natives who inhabited Cook's Straits at the time when the country was visited by Captain Cook and Forster have been replaced by tribes coming from the western coast and the interior of the northern island: war, or the desire to be connected

with Europeans has produced this result. The tribes of the Rangitane and Nga-hei-tao, in Queen Charlotte's Sound, have gone to the eastern coast of the middle island: some are held in slavery by the Nga-te-awa. The Nga-te-Kahohunu, in Tory Channel, and at Port Nicholson, have likewise given way to the Nga-te-awa, and live now on the eastern coast of the northern island, around Hawke's Bay. Two tribes of the Nga-te-awa, the Nga-te-motunga and Nga-te-toma, emigrated in a European vessel to the Chatham Islands. The Nga-te-raukaua, a central tribe of the northern island, were driven from their native district, near the sources of the Waikato River, and settled in Otaki, near the River Manawatu, enclosed on both sides by hostile tribes. All yielded to their common enemy, the Waikato. The latter have expelled almost all the inhabitants from the finest district in Cook's Straits, Taranaki, without occupying it themselves. It was not the desire of new dwelling-places which tempted them to this warfare, as they themselves possess one of the most productive parts of the island; they received the impulse from the chiefs of the Bay of Islands, who, being provided with fire-arms, had beaten them in several engagements.

It must not, however, be imagined that there is no relationship, no intercourse between these different tribes: they are all more or less mixed, although feuds still exist between the Nga-te-raukaua and the Nga-te-awa at Waikanahi, and between

the natives of the interior of Taupo and a branch of the natives of Wanganui. It is, however, probable that the great influx of Europeans into Cook's Straits, and the spreading of Christianity, will ere long terminate all these hostilities, and that their long-sustained quarrels will give way to a peaceful possession of their property, and to those blessings of security which can only be enjoyed in a well-organized state of society.

I subjoin a census of the tribes in Cook's Straits, indicating the larger families to which they respectively belong.

TABLE showing the NAMES of the NATIVE TRIBES on both sides of COOK'S STRAITS, with an approximation to the Number of Souls in each.

Name of the Place.	Name of the Tribes.	To what Family they belong.	Number.	Remarks.
Port Nicholson				
Oario	Puketapu	Nga-te-awa	800	The Nga-te-rua-nui are closely related to the Nga-te-awa, but are regarded by them almost as a dependent tribes.
Pitone	Nga-motu			
Nauranga				
Kai-ware-ware	Nga-te-toma			
Pipitea				
Wahi-pirau	Puke-tapu			
Waiwata	Nga-te motunga			
Taranaki	Nga-te-rua-nui	Nga-te-rua-nui		
Paru-rua and the Island of Mana	Nga-te-toa	Nga-te-awa	120	
Kapiti	Nga-te-toa	Nga-te-awa	200	
Waikanahi	Nga-te-awa	Nga-te-awa	700	
Otaki and River Manawatu	Nga-te-raukaua	Nga-te-raukaua	600	The Nga-te-raukaua are in hostilities with the Nga-te-awa in Waikanahi.
Rangitiki River	Nga-te-apa	Nga-te-apa	60	Slaves to the Nga-te-awa, but undisturbed.
Wanganui River	Patutokoto, Nga-te-rua-kua	Nga-te-tahi	900	This tribe is a mixed one; the Patu-tokoto being related to the Nga-te-pehi, one of the Taupo tribes, and the Nga-te-rua-kua to the Nga-te-awa tribes.
Waitotara	Nga-te-rua-nui	Nga-te-rua-nui	900	Allied to the Nga-te-rua-kua and Nga-te-awa. These natives are at war with the Taupo tribes.
Wenuakura				
Patea				
Waimate	Nga-te-rua-nui	Nga-te-rua-nui	400	
Puketapu				
Orangituapeki				
Otumatua	Taranaki	Nga-te-rua-nui	250	
Nga-motu	Nga-motu	Nga-te-awa	60	
SHORES OF THE MIDLAND ISLAND.				
Massacre Bay	Nga-te-toa	Nga-te-awa	400	
Wanganui	Puke-tapu			
Blind Bay	Nga-te-toma			
Rangitoto, or D'Urville's Istand	Nga-te-toa	Nga-te-awa	60	
Admiralty Islands	Nga-te-toa, Manakuri	Nga-te-awa	250	The Rangitane are slaves of the Nga-te-toa, and are the remnant of the former possessors of a great part of Cook's Straits.
Heoiri River	Rangitane	Rangitane		
Queen Charl. Sound				
Anaho	Puke-tapu	Nga-te-awa	60	
Moiolo	Nga-te-toa		150	
Te-awa-iti	Nga-motu		60	
Hokokuri	Nga-te-toma		120	
Cloudy Bay	Nga-te-toa	Nga-te-awa	400	
	Total of the	Population	6490	

PART II.

CHAPTER XII.

Northern Island—Northern Districts—Pa-renga-renga, or Village of the Lily—Reinga—North Cape.

AFTER a lapse of several months, which were taken up by a visit to the Chatham Islands, an interesting little archipelago to the south of New Zealand, and to New South Wales, but more especially to that district of the latter country which lies on the Hunter's River, I returned from Sidney to New Zealand in the Cuba, arriving in the Bay of Islands in October, 1840, after a voyage of only eight days. I then explored the northern parts of the island, and afterwards pushed my way to the interesting volcanic districts in its centre. I had intended to have returned to Cook's Straits, and explored in like manner the middle and southern islands, but various circumstances prevented my doing so.

A great part of the district to the northward of the Bay of Islands I explored in company with Captain Bernard, an adventurous Frenchman, who,

to a well-informed and liberal mind, united all that genuine politeness and *savoir vivre* for which his nation was formerly so famous. He was a most agreeable companion, and various were our adventures in the little schooner of sixteen tons, belonging to him, in which we coasted along the island, and entered many of the harbours; but having a great disinclination to describe personal incidents, I shall omit them altogether, and will risk the reproach of tediousness by giving what will, I conceive, be more useful—a topographical description of the different parts of the country, and afterwards look over the whole in a bird's-eye view.

I begin with the district of Kaitaia, comprising the northern end of the island. Cape Maria van Diemen, its north-western extremity, is formed of detached rocks of a hard conglomerate, which is composed of water-worn pebbles of basaltic lava, amygdaloidal basalt, greenstone, and Lydian stone. Inland of this rocky promontory the cape is sandy, and sand-hills run for a distance of about four miles along the coast to the eastward, as far as the Reinga, where the shore again rises into cliffs. The sand, driven by strong westerly gales, which prevail here during a great part of the year, has made great encroachments upon the land, and in fact nearly its whole northern extremity above the parallel of Houhoura or Mount Carmel—with the exception of that part which is situated to the northward of the harbour of Parenga-renga — has been over-

whelmed by it. The sand-hills near Cape Maria van Diemen are separated by swampy valleys, mostly covered with raupo (rushes of the genus Typha): where the drainage is better, flax and fern grow. Streamlets discharge themselves from the swamps into the sea, and on their banks some natives rear their provisions, consisting of common and sweet potatoes, water-melons, and pumpkins. There is but little vegetable earth mixed with the sand, but the moisture of the climate, and the reflection of the sun from the dazzling white sand-hills, together with the extreme northerly situation of the place, render the vegetation productive, and the fruits ripen almost a month earlier than in the Bay of Islands. The natives do not exceed a dozen in number, and belong to the once powerful, but now conquered and scattered, tribe of the Haupouri (wind bringing darkness). They are slaves, but are suffered to live undisturbed. The little village, in which they received me with great kindness, consisted of the most whimsical structures I ever saw. Each dog and each pig had its sty fenced in, and the men themselves had similar little sties to live in: from one of these the patriarch of the family addressed me with a dignity that contrasted strangely with the surrounding simplicity.

Reinga, a spot kept sacred by the natives, as the entrance into "the undiscover'd country, from whose bourn no traveller returns," is situated somewhat to the eastward of Cape Maria van Diemen;

it forms one extremity of a cliff of conglomerate rock, which cannot be approached from the sea-side, and which lines the coast for about six miles, and terminates to the eastward in a conical hill, Te-wanga-ke, whence the coast is lined by a sand beach to about the middle of the northern shore. It is curious to find in New Zealand the belief so common among barbarous nations, that there is a cave or passage through which the departed descend into the nether regions. By the New Zealanders this entrance is placed at the farthest extremity of their sea-girt isle (Te-Muri-wenua, or land's end), the limit of their known world, and the spot with which, of all others, the tribes to the south had the least inducement to become acquainted. The cliff above mentioned is the escarpment of a steep and narrow ridge, of moderate elevation, which runs inland towards the harbour of Parenga, but is not connected with the principal chain of mountains, which we can follow through the northern island, since to the southward of the harbour the island consists of low flats, the greater part of which, as I have already observed, is covered with sand. These hills consist of a stiff clay, white or reddish, from an admixture of oxide of iron, which is often found in brown crusts on the surface. From the principal branches of these hills ramifications run at right angles, like the buttresses of a fortification, and form ravines, which receive small streams of water. Only a scanty vegetation covers them, con-

sisting principally of manuka (Leptospermum scoparium), fern (Pteris esculenta), Lycopodium densum, and some mosses, with here and there a bunch of coarse, wiry grass, or Phormium tenax. In the ravines, however, the vegetation is more luxuriant, and consists of various trees, such as Fuchsia excorticata, puriri (Vitex litoralis), interspersed with fern-trees and cabbage-palms. On the whole there is very little wood, although in not very remote times the kauri pine (Dammara australis) must have covered all these hills, as is proved by the burnt remains of large trees of this species, and by the resin which lies everywhere scattered on the surface. At present there are only a few solitary trees of this species; these are to the northward of Kaitaia, and are of stunted growth. The destruction of the forest, which was a barrier to the encroachment of the sand, has sealed the doom of this northern part of the island, and a time may probably arrive when the whole will become its prey. Where the kauri once grew the soil is now only fit for the manuka and the fern. Evidence that this overwhelming sand-drift is of a modern date, and is owing to the destruction of the forest, may be seen on the western coast. Although there, also, almost the whole is covered with sand, still there are islands, or oases, so to speak, rising twenty or thirty feet above the sand, one or two miles from the sea-shore, showing on their steep sides the ancient structure of the land. The sand, working

in the same manner as the waves of the sea, gnaws at these islands, but has not yet been able to reduce their level to that of the surrounding land. About half way between Parenga-renga and the western coast there is a puriri-tree (Vitex litoralis) half buried in the sand, but still growing; it serves as a landmark to the natives, within the memory of some of whom the sand has accumulated several feet in height. At other points on the western coast the same appearance is presented by some patches of forest having protected isolated spots of land, the soil of which is still good and fertile.

From Manga Ke the northern coast sweeps again in an open bay for some miles to the eastward. The eastern extremity of this bay is formed by a rocky peninsula of pudding-stone, worn by the action of the waves. At high water it is insulated, and, being difficult of access, was formerly a stronghold of the Haupouri tribe. A narrow valley here opens to the sea; through it flows a rivulet, which winds between rocks overturned and broken in the most remarkable manner. Sometimes the sides of the valley form high and perpendicular cliffs, presenting steep and naked walls opposite to each other; sometimes they slant down at different angles, or form tabular masses, or rise into compact pyramids. The rock is the same conglomerate, extremely hard, and forming solid masses; but the narrow valleys between ridges contain a very fertile soil. The hills have the appearance of a large

mass or layer of firm rock violently broken and heaved up by gaseous vapours. The highest of the hills, called Hairoa, is visible at some distance from the eastern coast, and an arm of the estuary of Parenga-renga, extending to within about three miles of its base. It rises almost to a point, so that there is scarcely room for a man to stand on. A little below the summit the hill is pierced by a vault, which serves as a frame through which to view the surrounding country. The worn surface of the hard rock, which is visible at about 300 feet above the level of the sea, does not appear to have resulted from the effects of air and rain, but rather from the long-continued action of the sea beating upon the deposited and conglomerated pebbles after the mass had been elevated and rent asunder by earthquakes.

The whole of this place is called by the natives Kapowairua (literally, a spirit which has become night—that is, has been annihilated). It was once occupied by the tribe of the Haupouri, under their leader E' Ongi, surnamed Cape (North Cape), to distinguish him from the renowned E' Ongi of the Bay of Islands; they were attacked by Pane Kareao, the chief of the Rarewa tribe at Kaitaia, who had been called in by E' Ongi's own people to prevent the aggressions of their chief. E' Ongi was taken by surprise at the dawn of the morning, and killed, together with a great many of his people; the rest were obliged to leave their native land, and to

settle in Kaitaia. This happened about ten years ago; and as at the same time several of their pas at the North Cape were taken, nobody has since lived in the district, and Kapo-wairua was sold by Pane Kareao to an European. In the direction of one of the principal inlets in the estuary of Parenga-renga, the few narrow and fertile spots near the northern shore soon give way to that kind of narrow ridges and ravines which I have mentioned above. Having formerly been kauri-land, they are now very barren. The soil contains layers of soapstone, or steatite, a material which is very useful in the manufacture of china, and a good deal of stiff ferruginous clay. The arms of Parenga-renga inlet extend between the ramifications of these hills, and generally terminate in swamps, grown over with what is called the New Zealand mangrove (Avicennia tomentosa), named manawa by the natives. The available land is of very limited extent.

As regards the northern coast, I have only further to observe that up to the North Cape it is very rocky, alternating with small sandy bays. Off the North Cape lies a small rocky island, Muri Motu (Last Island), separated from the mainland at high water only. The promontory itself is high and bold, presenting very steep sides to both the northern and eastern coast; but a flat and swampy land of about three square miles in extent runs from the northern to the eastern coast, and sepa-

rates this promontory from the hills at Kapowairua.

The eastern coast from the North Cape to the north head of the harbour of Parenga-renga is formed by frightful perpendicular cliffs of volcanic conglomerate, sometimes alternating with cliffs of a reddish crumbling loam; where this is the case the land is very fertile. In many places quicksand hides the formation of the land, and forms downs and sandy beaches. Part of the coast is occupied by a hard grey stratified sandstone, which can be traced across the neck of land separating the estuary of Parenga-renga from the sea. On both sides it is included by the conglomerate. In this sandstone I found a small layer of good coal a few feet in length and an inch and a half broad. The coal formations of England being overlaid by a similar conglomerate, it might be thought probable that more extensive beds of coal would be found in this neighbourhood: but, from a few fossils which I afterwards found in the conglomerate, I am induced to believe that this rock is not of the age of the old red sandstone, but belongs to a modern tertiary epoch, although it is certainly curious that the formation of brown coal, or lignite, which abounds in New Zealand, and which evidently belongs to the same age as the coal above mentioned, should have been followed by a conglomerate much worn and shattered, and indicating, as does the conglomerate of the coal-measures, a period of great disturbance. The coal, although

in small quantity, is in this case a true coal, and proves, if really belonging to the tertiary epoch, that the formation of coal has not been confined to one period of the earth's existence.

The northern head of Parenga-renga is a black water-worn bluff, and here the conglomerate contains some perfect fossils, especially of the genus Turritella and Ostrea. The entrance into Parenga-renga is easily distinguished by this bluff, as the southern head is a spit of a dazzling snow-white sand, which stretches towards Mount Carmel along the coast, and extends for some miles inland.

From Cape Maria van Diemen, along the western coast, a long line of sand-hills alternates with a few cliffy promontories, consisting either of a hard basaltic lava in irregular masses, or of a reddish loamy earth with layers of lignite, three or four feet in diameter, and overlaid by a thick stratum of loam. The lignite is not peat, but real wood, more or less carbonized. The pieces of wood, although much broken and worn, are easily recognised as belonging to species of trees still existing in the island, especially kauri (Dammara australis) and Pohutu-kaua (Metrosideros tomentosa). It will be seen in the sequel that formations of this description are very common in New Zealand, both on the eastern and western coasts, and that they form, in fact, a leading feature in the geology of the island.

I must not omit to mention here a small rocky island, lying about twelve miles from Cape Maria

van Diemen, and three miles off the shore, and called Matapia. It is covered with countless numbers of sea-birds.

In crossing from the western coast to Parenga-renga the road leads for several miles over white and soft sand-hills. Their desolate aspect is peculiarly impressive, as almost before our eyes the sand is swallowing up the only verdant spots which remain. The similarity of these little plots of land to islands, presenting in their steep sides layers of lignite and reddish loam, and the resemblance of the quicksand to the waves of the sea, are very striking. But never did a water-worn island bring so clearly before my mind the destroying agencies of Nature as this scene did, since we have here the means of ascertaining their quick effects by the plants and shrubs which are half buried in the sand. Several shallow but clear rivulets flow towards the western coast, being the outlet of some small lagoons or swamps, which afford temporary protection from the sand to the wooded spots beyond them. A few miles from the estuary of Parenga-renga the land, being more sheltered by hills, assumes a better aspect; the narrow ravines are fertile, and covered with high fern, flax, and brush-wood, and brooks flow through them, which join the different arms of Parenga-renga harbour.

This estuary is not laid down in any chart, although it is an extensive one; it must be placed at what is called Sandy Bay in the general charts, in

latitude 35° 35′ S., and in 172° 57′ E. longitude. The entrance to it is narrow, but is two fathoms deep at low water. The tide rises ten feet. I must however observe that, in standing out of the harbour in our schooner during the ebb-tide, I observed some rocks in the entrance, about six feet under water, and vessels must therefore ascertain the exact channel previously to entering.

The harbour, or the estuary, as it should more properly be called, is from six to eight square miles in extent, and sends several branches in different directions for some distance inland, all of which are navigable for boats at high water. Good land is situated at the head of these channels; one of these is only a little distance from Ka-po-wairua on the northern coast. The best anchorage in the harbour is within the inner northern head, where there is five fathoms water.

At the North Cape I found the remains of large native pas, or fortifications, on the crest of the hills. It will, perhaps, be recollected that, in the account of Captain King's 'Voyage to New Zealand,' it is stated that he found this part of the island well inhabited. Since that time all the inhabitants have been reduced to slavery in their last wars. For a long time the whole district was laid under "tapu," that is, forbidden to be inhabited, and the remains of the tribes went to other places. It was only a short time before my arrival in Parenga-renga, in the beginning of 1841, that about sixty natives of the

Haupouri tribe had returned to their old country with the permission of Pane-kareao, the chief at Kaitaia, intending again to settle here. A European was living with them, for whom they had engaged to catch wild pigs, which have overrun the northern extremity of the island, where they feed upon fern-root and sea-weeds. A great quantity of fish is taken in the habour, especially skates, herrings, mackerel, and snappers; and the natives were preserving them in great quantities by simply drying them in the sun.

The whole extremity of the island, from Parengarenga to the northward, is called by the natives Muri-wenua (the land's end), and from my description it will be seen that there is not much to entice European settlers. There is, however, land fit for some small farms, with excellent soil, sufficient wood, and great facilities of water-carriage. But it is to be expected that the remainder of the original tribe will return to their native place, and at the same time it is probable that some one of the private purchasers will occupy his land, and give the natives a stimulus for improving their condition. A considerable number of sheep would find easy sustenance on the hills, more so indeed than in most other parts of New Zealand, as the herbage here is low, and therefore better adapted for sheep than a high and vigorous one.

CHAPTER XIII.

Harbour of Houhoura, or Mount Carmel—Rangaunu—Kaitaia.

At the narrowest part of the island, from Parengarenga to about eight miles to the southward of Houhoura, or Mount Carmel, the land consists either of low hills or swamps, and is almost useless on the east coast, where it is lined by a long sandy beach, here and there interrupted by bluffs of basaltic rock, which are verdant with groups of the hardy pohutukaua-tree (Metrosideros tomentosa). The vegetation of the hills is brown and low, almost wholly consisting of fern and manuka. On the western coast the land wears a better aspect, where no sand-hills intervene. The shore consists of cliffs about thirty feet high, in which loam and lignite are observed. They have a sandy beach before them; and everywhere springs of most excellent water drip down, proving the moisture of the climate, even in the height of summer. In consequence of this abundant moisture the natives have many plantations, which are in a thriving state. Towards Waro, a high dome-like promontory, consisting of a volcanic clay-stone, or wakke, the land

becomes excellent. This mountain is the commencement of a continued chain of similar hills, which run along the western coast to the southward, their formation being different varieties of trap.

Mount Carmel itself is not connected with any chain of mountains, but forms an isolated hill, and rises to the height of about 500 feet above the sea. This mountain protects a deep inlet, which, at the head, branches off into several shallow channels, and forms a perfectly sheltered harbour for vessels of the largest burden, with anchorage close to the eastern shore: the entrance to this harbour is not more than forty or fifty yards broad. The mountain is similar in its structure to the main range of hills, and its appearance is such as to indicate clearly its formation below the level of the sea. The base is basalt and clinkstone; the summit forms a narrow ridge, from which steep buttresses run out towards the sea on one side, and towards the harbour on the other. In ascending we pass from the trap to a greyish sandstone, irregularly mixed with pipe-clay, steatite, and massy greenish quartz. On the top, and to seaward, this hilly group is barren, although, from the resin found here, we have unequivocal proofs that it was once covered with kauri. Towards the harbour the natives have cultivated portions of the steep ridges; these plantations alternate with pleasant bushes and groves to the water's edge. The natives are only about forty

in number: they belong to the Haupouri, and are not therefore an independent tribe. They are now all Christians, and some of their number had gone as catechists to Parenga-renga.

They told me that they had once a very large vessel in their harbour; and although the surrounding country is not a favourable district for the colonists, this harbour may afford shelter to vessels which draw too much water to lie with safety in the Bay of Rangaunu.

Some miles to the southward of Houhoura the land at once assumes a very different aspect. The raupo-swamps, and the low barren elevations of the soil between them, give way to an extensive alluvial district, which stretches from the eastern to the western coast, and follows the serpentine course of the Awaroa, a river which empties itself into the estuary of Rangaunu, a shallow and extensive arm of the sea, with an open though an intricate channel for moderate-sized vessels. I entered the harbour at low-water, in the schooner, which drew eight feet, and, not knowing the channel, we grounded several times, although there is but little danger in fine weather, as the bottom is soft and muddy. We anchored about three miles from the north head, sheltered by a spit of sand, and then went twenty miles farther up the river in a boat, to a farming establishment of a Mr. Southee. On a second visit we took the schooner up to the same place, and anchored close to the house of Mr.

Southee, where the river was not much broader than the length of our little craft. But the tide presses the fresh water back eight feet above its usual level, and it is then of considerable depth. It is one of those rivers the banks of which consist only of their own alluvium, the channel winding in a serpentine course; it has little fall, but the tide renders it always navigable. The banks are perpendicular, and rise two or three feet above the level of the spring-tides; towards its outlet, however, the land is low and swampy, and is overflowed when winds from the sea raise the water to a higher level, or when floods, occasioned by long-continued rain, come down from the interior.

I will transcribe a few lines from my journal describing the country in the neighbourhood of the river:—"At first we passed swamps covered with mangroves, sometimes only showing their heads above water, and affording shelter to flights of ducks and other aquatic birds. When the banks become higher, the land is perfectly level; the soil, as is seen by the section of the river banks, is in some places a stiff black loam, in others a lighter earth, to all appearance admirably adapted for grain. The country is perfectly open in many places, and only covered with tupakihi (Coriaria sarmentosa), fern, high flax, and here and there some spots of grass. In other parts the ti (Dracæna Australis), the stem of which seldom exceeds half a foot in thickness, forms almost a forest, or, to express myself more

correctly, a jungle; and the beautiful crowns of these monocotyledonous, mostly dichotomous, or many-branched trees, with their bunches of delicate white flowers below the crown of leaves, as in the palm-tree, give the landscape a most novel aspect, the more so from my having seen few such open flats in New Zealand. The higher we went, the more agreeable was the scene. On the shores were native settlements, with long seines hanging out to dry, and many natives at work mending canoes and their fishing apparatus, for the season is approaching when the shark is caught in great numbers. Here and there fields of potatoes, kumeras, melons, and pumpkins, neatly fenced in, and kept extremely clean, show all the vigour of vegetation for which New Zealand is so remarkable. Their owners welcomed us as we went along, but did not evince any pressing curiosity. The setting sun threw a stream of gold over the western horizon, which caused the mountains to stand out in sharp relief against the sky, and made them appear almost of an indigo colour. Early in the evening we arrived at Southee's farm; it is situated on both banks of the river, which here forms by its serpentine course several natural paddocks. The maize, growing ten or twelve feet high, and the fields of yellow wheat, bowing under the weight of the grain, showed what the land is capable of producing. Cattle were grazing about, and the well-stocked farm-yard bore testimony to an industry such as is very rarely met

with amongst the numerous settlers of all classes who for several years have had almost the whole of the land partitioned amongst themselves, as the generality of them have bought the land for the purpose of speculation, instead of cultivation."

Mr. Southee has about 300 natives around him in his immediate neighbourhood, who cultivate bits of land interspersed with his own, and who, for cheap wages, work for him in various branches of husbandry, and thus procure for themselves those European commodities for which they have acquired a taste. He gives them articles to the value of 2*l.* for every acre they clear. The mode which he adopts in clearing the land is to cut down all brush-wood and vegetation in summer, and to burn it when it has become dry. Immediately after this he sows the ground with turnips, and when these have been gathered, with potatoes, which require only a little hoeing. The roots and stumps are then sufficiently rotten, and the ground can be easily tilled and prepared for grain.

From Mr. Southee's house the river turns, with many windings, towards the western coast. Higher up its course it acquires greater fall, and in many places is obstructed by snags. Its banks are of the same good description, and are here and there clothed with groves of kahikatea, rimu, and totara pines, or of tarairi (Laurus tarairi) and puriri, until it arrives at Kaitaia. A mission-station and native settlement is situated about eight miles from the

western coast, on a hilly eminence, an offset of the chain of hills which run from near this point through the interior. Between this chain and the range of western coast hills which I have above mentioned, flows the Awaroa, having its source near that of the Mango-muka—a branch of the Hokianga river, from which it is separated by the Maunga Taniwa, a remarkable pyramidical peak which towers above the chain of hills, being nearly 1500 feet high.

Throughout its course the valley of the Awaroa is capable of being made very productive, as the soil is extremely fertile: from Kaitaia it narrows to the breadth of one mile. Several miles below Kaitaia the river is joined by another, coming from the eastern hills in the neighbourhood of Mango-nui in Lauriston Bay, and at the point of junction scarcely inferior in size to the Awaroa. Above Kaitaia the Awaroa is only passable by canoes, in which the natives carry down food from their plantations to their principal settlement at Kaitaia. They prefer the upper part of the valley for cultivation, as indeed they usually do; and their fields are very extensive, and kept in good order. From Kaitaia to the western coast the land is equally good. In some places there is excellent grass, rather an unusual thing in New Zealand. A wooden bridge over the river has been built by the natives, under the guidance of the missionaries; and if we cross it, and pass to Waro on the

western coast, several valleys are seen stretching from the western hills into the plain, in most of which natives reside. To the northward of Waro low ridges run parallel to the sea-coast, small creeks flowing between them, and the light soil there is eagerly sought after for the cultivation of kumeras. At one of these creeks, the Wai-mimi, there is an extensive bed of lignite. About two miles to the northward of Kaitaia is a small fresh-water lake, containing large eels and two kinds of small fishes; crawfish is also found there.

The natives form the tribe of the Rarewa, and their whole number is about 8000, including all those who inhabit the valley of the Awaroa. Of all the natives who are under the influence of the missionaries, this tribe is the most advanced in the arts of civilization. This must be ascribed partly to the endeavours of the missionaries and partly to the comparative isolation of the natives, resulting from their having been powerful enough to resist the aggressions of E'Ongi from the Bay of Islands, and of the neighbouring tribes. The traveller does not meet here with that begging and grasping behaviour which renders the natives on the coast so importunate; on the contrary, they are a quiet hard-working people, and they have, for a very small payment, cut a road thirty-two miles long through the primitive forest, between Kaitaia and Waimate, in the neighbourhood of the Bay of Islands; they have also cut roads in the neighbourhood of their own village. During my

stay I saw them reap wheat and plough several acres of land, and the missionaries encourage them to exchange their former unwholesome food of decayed maize and potatoes for bread. Several of the natives have one or two head of cattle and horses; and I have every reason to believe that here at least the missionaries will encourage their acquiring them, in order to dispose of the increase of their own stock.

The village has quite an English appearance; a large church, with a steeple of kauri boards, has been constructed almost entirely by the natives; gardens, with roses, are before the houses, and at the foot of the hill wheat alternates with vines, with hops, which thrive extremely well, and with various fruit-trees and vegetables: there are also several patches planted with tobacco.

The natives lived originally at the Hokianga, but about twenty-five years ago they took Kaitaia from the Haupouri and Nga-te-kuri, who must have been very numerous, judging from the remains of their pas on the neighbouring hills. A great portion of these tribes were slaughtered, and the rest either were made slaves or mixed with the conquerors. About eight years ago the missionaries established a station here, the wars between the native tribes having come to a termination, and they found it comparatively easy to obtain an influence over them.

The hills which stretch from Kaitaia, through

the interior of the country, are wooded, and only a few miles from Kaitaia they are covered with kauri-forest. Near the entrance to Rangaunu Bay are very fine groves of this valuable tree, mixed with tanekaha, rata, towai, and other excellent timber-trees. An arm of the sea, which is joined here by a fresh-water creek, the Mangake, and which flows through a considerable extent of forest, affords facilities for floating the timber down, or for establishing saw-mills.

The alluvial land, as already observed, is for the most part fit for immediate cultivation: the herds of cattle and horses belonging to the missionaries are in excellent condition, and show that there is a sufficiency of pasturage.

In the neighbourhood of the mission-station there is found a white, hard, and very closely-grained sandstone, which would prove an excellent building-stone.

The hills near the western coast, on the left bank of the Awaroa, consist of basaltic masses, of rounded forms and of moderate height. They are covered with a mixed forest; no kauri is found there; and all the land to the westward of the Awaroa must be considered as excellent, notwithstanding its hilly character. The hills on the right bank, which extend through the interior of the island, are composed of a soft argillaceous slate, reposing upon a base of hard volcanic rock, phonolithe, or clinkstone. Where the claystone and the phonolithe are in con-

tact, a transition from the hard condition of the latter to the soft state of the former is observable to the eye of the geologist, and displays an instructive phenomenon. Very near Kaitaia, about 150 feet above the level of the valley, a slaty marl crops out in perpendicular slabs in the depressions of the hills, and is an excellent material for improving the soil of certain kinds of fields, and is, in fact, extensively used in agriculture.

A bridle-road leads from Kaitaia for thirty-four miles through the forest: it was cut by fifty natives for as many blankets, and was completed in six weeks. They were, however, glad when they had finished their task, as they had suffeed much from want during the time, as is shown by the following song, which was sung by them on the occasion :—

Ka ngaro te purapura,
Te pata kai:
Etiki ka mate: ko Taewa ka mate:
Ko te Paki ka mate:
Ko te Matiu ka mate:
Ka ka po nei te manawa:
Ka tahuri au ki te reinga:
He poro kaki ka mate.

The tobacco is gone: we have no food cooked in a pot: Etiki is hungry: Taewa is sick: Te Matiu is sick: Te Paki is hungry: all our good cheer is exhausted: we turn back towards the Reinga: we are sick for some food.

The days of such cheap work are now gone by in New Zealand. At a distance of seventeen miles and a half on this road is situated Maunga Taniwa.

The whole valley of the Awaroa cannot contain

less than 120,000 acres of arable land. In respect to the quality of the soil, the facility of cultivation, as well as of water communication, the abundance of excellent wood and of other building materials, the district is one of the most favoured in New Zealand. A great portion of the land has been purchased by a few private individuals; but if the intentions of Government, of not allowing more than 2500 acres to any one individual, is strictly carried into effect, a great part of these purchases will come back to the natives, and, without injuring the interests of the latter, government will have no difficulty in acquiring a fine agricultural district. Kaitaia itself, which is eight miles from the western coast, and six from Southee's station, is a desirable place for a provincial town, as it is in the centre of the district, and in a healthy situation; it stands on an eminence commanding a view of the whole district, and is especially adapted to serve as a central point and market-place for the surrounding native population.

CHAPTER XIV.

Harbour of Mango-nui, in Lauriston Bay.

To the southward of Kaitaia the interior of the island is occupied by a range of hills, which sends its branches both eastward and westward, forming narrow valleys that serve as river-courses. The sea enters into several inlets on both coasts, where it is joined by the various rivers, if the mountain-streams deserve that name, and forms several harbours. The general height of these hills is less than 1500 feet above the level of the sea; this height, however, they attain in the Maunga Taniwa. The top of this pyramid, which runs almost to a point, offers an excellent view of the surrounding land. An old Metrosideros stands on the summit, overshadowing the heavy growth all around: the natives have cut steps into its stem to afford an easy ascent. From this place we overlook the whole northern extremity of the island as far as the Bay of Islands, and it will afford an excellent trigonometrical station. We can here perceive that the different ramifications of the chain do not form valleys, but ravines, which only widen towards the estuaries of the sea. The whole is

clothed with a thick forest, the dark verdure of which is uninterrupted, except by the bright green of a raupo-swamp in the bottom of the ravines, or by the brown hue of the fern, which covers some districts, especially towards the coast. The forest is a mixed one; that is to say, there is no prevailing kind of trees, and only towards Mango-nui, Wangaroa, and Hokianga are groves of kauri. Many of the trees, especially the rata (Metrosideros robusta), the totara (Podocarpus totara), the rimu (Dacrydium cupressinum), the pukatea (Laurus pukatea ?), are of immense dimensions. They are intermingled with fern-trees, especially Cyathea medullaris and Cyathea dealbata; while the cabbage-palm (Areca sapida) grows in the deepest recesses. The mouldy soil, refreshed by continual moisture, bears numerous other species of ferns, as well as some beautiful mosses, jungermannias, livermosses, lichens, and a few kinds of fungi. Many trees have been uprooted by gales, or have fallen down from natural decay, whilst all around vegetation is springing up from destruction, and this apparent destructive process gives a true image of the continual destruction and re-creation of Nature, and displays those unchanging laws which pervade the universe, and which are nowhere more powerfully impressed upon the mind than in a primeval forest. At first, all the trees in a New Zealand landscape seem to be of a uniform dark tint; but, on inspection, one cannot fail to discover as many

varieties of colour as there are species. Their forms likewise belong to the most beautiful in nature: what, for instance, can be more delicate than the graceful rimu-pine with pendent branches; or the tree-ferns and stately palms; or the venerable rata, often measuring forty feet in circumference, and covered with scarlet flowers—whilst its stem is often girt with a creeper belonging to the same family (Metrosideros hypericifolia)? Sometimes the vines, a foot thick, of another creeper, the aki (Metrosideros buxifolia), also with scarlet flowers, are seen running up to the highest branches of the rata. Of other parasitical plants, however, the rata-trees are very free, by far more so than some pines, such as the puriri (Vitex litoralis) and some others.

It is remarkable how little this forest is enlivened by living beings: a few birds, it is true, are found in its recesses, whose notes are various and melodious; but at noon they all seem to repose, and the silence is then scarcely ever interrupted.

The formation of which this hilly ridge is composed, so far as the luxuriant vegetation permits of its being observed, is a yellowish argillaceous rock, mixed in fragments with the vegetable mould. It is of various degrees of hardness, and in most cases may be observed in conjunction with compact basaltic rock, which appears sometimes protruding on the surface, sometimes laid bare in the river-courses. The pebbles in the rivers are whinstone of different

colours, and varying in point of hardness, and this rock seems to be everywhere the lowermost, and to compose the greater bulk of the mountain, having in its formation variously acted upon and changed the covering argillaceous rock. Both on the eastern and western coast other kinds of rocks may be seen,—marly limestone, marble, in junction with slates, conglomerates, sandstones, and lignite, of which I shall have occasion to speak more fully when describing the places in which they occur. The flat alluvial land extending on the right shore of the Awaroa to Rangaunu Bay is separated from Lauriston Bay by an offset from this hilly ridge, which juts out into the sea, and forms Kari Kari, or Knuckle Point. These hills are low, covered in some places with a little wood, in others with fern. The first place which claims our attention in Lauriston Bay is Oruru, where a river, which takes its rise on the eastern slope of Maunga Taniwa, and which can be entered by a boat, empties itself into the sea. On both sides of this river is excellent level and clear land, which rises slowly towards Maunga Taniwa. Oruru is separated by low hills covered with a stiff white clay and a scanty vegetation from a similar valley, eight miles to the northward, and out of which another river runs into the sea. The road from Oruru into the harbour of Mango-nui leads over a succession of steep hills and narrow fertile ravines. The distance is about ten miles.

I was agreeably surprised to see the native plantations at Oruru. In neatness they exceed everything that would be done by Europeans with similar means; but, strange to say, the natives had preferred the steep sides of a hill to the rich alluvium of the valley.

There are not many people living here: those who do belong to the tribes of the Haupouri, but Pane Kareao, the chief at Kaitaia, claims the whole place and the right to dispose of it, as the present occupants belong to a subdued tribe. The greater part of the land has been sold, chiefly to Mr. Ford, who was formerly the surgeon attached to the missions.

The harbour of Mango-nui is not laid down in any chart; vessels rounding Point Surville should keep close to the southern shore of Lauriston Bay, and will then have no difficulty in avoiding the reef of rocks which runs off Oruru in a north-easterly direction, and which is the only obstacle to a safe and easy entrance into the harbour. The channel is not above 100 yards wide, but is very deep. Several whalers have at different times resorted to this harbour for provisions and repair. In the narrow part of the channel a vessel can keep close to the southern shore; and, entering the basin, haul close round the southern head, and anchor in five fathoms water about a quarter of a mile off that head, where a small number of vessels are perfectly sheltered. The rest of the estuary is a large basin,

spreading out into mud flats at low water, with a channel sufficiently deep for large boats, near the northern shore, up to its head, which is here entered by a river that takes its rise in the hills separating the harbour of Wangaroa from Mangonui. An arm of the latter stretches towards Ororu, and unites with this river behind an island of moderate size which forms the head of the harbour. This island conceals mangrove-flats, which lie on both sides of the channel.

The river Pu-te-kaka is entered by the tide for about eight miles, and thus far a boat can go up it. It flows through an undulating open country, the elevations alternating with large swamps, which might be easily drained, and would then form good agricultural land. Higher up, the view is shut in by the hills towards Wangaroa, which are about fifteen miles distant, and are covered with kauri-forest, as are also the hills to the west and north. The land up to the base of those hills is devoid of trees. At this point the Pu-te-kaka is only a small creek, but several times during the year it swells sufficiently to float large logs of kauri into the harbour. A melancholy scene of waste and destruction presented itself to me when I went up to see this forest. Several square miles of it were burning, having been fired in order to make room for the conveyance of logs down to the creek. Noble trees, which had required ages for their perfection, were thus recklessly destroyed in great

numbers, as, in consequence of the great quantity of resin around this pine, the fire always spread rapidly. The cupidity of new settlers too often occasions the destruction of the forests, to the irreparable injury of subsequent colonists. A great many of these first settlers, doubtful of being able to maintain their claims to their immense purchases, have no other object than to clear the greatest possible amount of profit in the shortest time, even at the sacrifice of a large and invaluable forest. It is utterly impossible ever to make good the damage thus done to the real interests of the country at large, as the kauri-land is so exhausted that scarcely anything will grow on it but fern and manuka. Unless the strictest measures are immediately taken to prevent this reckless destruction, it is very certain that the forests of this noble tree will be greatly and irreparably reduced, as the kauri is already a scarce tree, and is confined to very narrow limits. These reflections occurred to me more than once during my wanderings in New Zealand, having many times seen kauri-forest burning, not fired for the purpose of clearing the land, but in order to get a dozen or two of logs: sometimes the conflagration has been caused by neglect: in several places, many square miles in extent are covered with the burnt remains of the forest.

The trees here were cut up into logs sixteen feet in length, and four of these logs were generally

obtained from one tree. The work was done by native sawyers.

About six miles from its outlet into the harbour the Pu-te-kaka is joined by another river, which flows through a fine cultivated valley. The north side of the harbour is hilly, and consists of a red ferruginous loam, interrupted in some places by basalt and Lydian stone. The southern head of the harbour is a narrow peninsula, with table-land on the top; towards Point Surville the coast is hilly, with occasional narrow valleys, most of which are wooded towards the sea-coast.

There are about thirty Europeans living in this harbour, chiefly sawyers and storekeepers, and a few natives. The latter have their fixed habitations at Oruru, and only come here for the purposes of trade and work. Most of them are Nga-pui, who came from Tai-ama near Waimata, and occupied the land with the permission of the chiefs at Kaitaia. They have sold the whole of the harbour and surrounding country to different people; but the chiefs at Kaitaia deny that they had any right to do so, and have asserted their own claim to the territory by selling the harbour to Government.

Mango-nui is well situated for a small town, as it commands a sufficient extent of agricultural and timber land to insure success. There is an easy communication with the different native settlements in Lauriston Bay; and a good path leads to Kaitaia, which might easily be converted into a road.

One of the European colonists here, who had lately come from Adelaide in South Australia, presented me with a specimen of that very curious bird the kiwi, or Apterix australis: it had been killed by a dog, and was consequently much injured. This was the only specimen I obtained during a stay of eighteen months in New Zealand, although I offered a liberal reward to any native who would bring me one. In most places the natives told me at once that none were now to be found, that the dogs and cats had destroyed them all. In the hilly and gloomy forests between Mango-nui and Hokianga they were said still to exist, and also in a swampy mountainous tract in the neighbourhood of Waimate; but the indolence of the natives in those districts frustrated all my efforts. Other places—as the Little Barrier Island in the gulf of Hauraki, some districts near the East Cape and the western coast of the Middle Island, where they are said to be still common—I had no opportunity of visiting. A bird of such anomalous structure as the kiwi, differing, as it does, from all other birds, although most nearly related to the Struthious order, and having habits peculiar to itself, had attracted my most eager attention. That the period is near at hand when this bird will be extinct is quite evident, and is a point of the deepest interest to the natural philosopher, on account of the conclusions to be drawn from such a fact, as regards certain events in the history of the animal creation, and the agencies employed to

influence the actual state of many tribes, and the fluctuations in their relative positions. Happily for us, the most eminent comparative anatomist of the age, Professor Richard Owen, has, by a most careful dissection of several specimens, the result of which is given in the second volume of 'The Transactions of the Zoological Society,' preserved to science a most complete account of the structure of the apterix. Unfortunately, no such account exists in regard to another bird which has disappeared from the globe within the memory of man; I mean the dodo, formerly inhabiting the islands of Bourbon and Mauritius. A few observations regarding the apterix will not, I trust, be considered out of place.

The kiwi, or kiwi-kiwi, as it is called by the natives, inhabits the deepest recesses of the forest. Here, where gigantic trees are interwoven almost impenetrably with climbers, and where in the indentations of the mountains are formed small open and swampy spots covered by bulrushes and tufts of a high carex, or a liliaceous plant, the Hamelinia veratroides, is its favourite resort. Here it hides itself in the hollows of the trees during the day, being a truly nocturnal bird. It generally lives in pairs, male and female, one pair occupying a certain district. As soon as night sets in it leaves these hiding-places in search of food: this consists of the larvæ of coleopterous and lepidopterous insects, which it scratches out with its pow-

erful feet, or turns up with its long slender beak. But insects seem not to be its only food. Professor Owen found seeds in its stomach, which I ascertained to be those of the Elaeocarpus hinau; and, according to the statements of the natives, the seeds of the Hamelinia veratroides are also a favourite food with it. Little is known as to the nidification and incubation of the kiwi; but I have ascertained the following particulars from the natives:—They say that it burrows with its feet, and hollows out to a greater extent excavations already existing under the roots of trees; and in them, on a single layer of grass, it lays one egg of a greenish colour and as large as a turkey's egg. They also assert that the male and female hatch alternately. Their notion as to the period of incubation is rather curious, as they say that the bird sits for several months upon the egg.

During the night the shrill cry of the kiwi is often heard: the male utters the sound hoire, hoire, hoire; the female, ho, ho, ho. By imitating these notes the natives decoy the kiwi, and catch them with the help of a dog, or bewilder them by suddenly displaying a torch made of the resinous hauri-pine; by which plan they catch them alive. A violent struggle generally ensues between the dog and the bird, in which the kiwi uses its powerful legs with great effect. It is said to be very swift in running, although its feet do not seem better adapted for that purpose than those of the common fowl.

Formerly the kiwi served the natives for food; it is very fat at some seasons, and its flesh is said to be well tasted; its skin, which is remarkably strong and tough, especially along the back, was sewn together, and formed highly valued mats. Never having seen one of these mats, I readily concluded that the bird itself had become very scarce. I possess, however, fish-hooks to which the feathers of the kiwi are attached as artificial flies; and to that purpose they are well adapted. From all I could ascertain, there exists only one species of this remarkable bird. The male is distinguished by being much larger than the female, and by having a longer bill; at least, this is the case in all the specimens the sex of which was ascertained —and there are ten or twelve now in England; and it was also the case in those which I saw in New Zealand in the possession of Mr. Colenzo and the Rev. Richard Taylor, and also in the Museum in Sydney. This difference of size will account for the belief that there were two species.

If it be true, as the natives assert, that the kiwi is found on Little Barrier Island—which is uninhabited, and is situated about nine miles from the main—this fact would give rise to curious geological speculations. How did a bird which cannot fly—for its wings, so to speak, are nothing but small crooked appendages, each about an inch and a half long, and terminating in a claw—come across the sea to that island? It would appear that no

other answer can be given than that the island was formerly connected with the main. Fortunately we have proofs of a similar disruption in the existence, on a small rocky islet in the Bay of Plenty, of a guana, which on the main has almost become extinct. I shall speak of the latter remarkable fact in another place.

CHAPTER XV.

Harbour of Wangaroa.

THE harbour of Wangaroa has already obtained some celebrity by the catastrophe which happened to the Boyd, and the murder of her crew and passengers by the natives, in the year 1809. It is situated about twenty-five miles to the northward of the Bay of Islands. From Point Surville to the entrance of this harbour the coast is cliffy and steep, consisting of fragments of volcanic rock very firmly cemented together into a conglomerate. The entrance to the harbour is formed by towering perpendicular rocks of the same description, and is only about 150 yards broad. Pohutukaua-trees and others overhang these black walls, and form a very picturesque contrast with them. The entrance looks as if the solid rocks had been rent asunder by an earthquake, and the steep opposite sides had undergone a continued friction before they parted. Deep fissures penetrate the coast, and high cubical masses are piled one above another in-shore to the height of several hundred feet. The most remarkable is Waihi, or St. Peter, a cluster of these solid

rocks on the northern head. The water in the entrance is of great depth close to the rocks, and there is no sunken rock or other hidden danger below the surface. This volcanic conglomerate overlies a formation of volcanic ashes, which contains carbonized remains of fern and wood.

Nearly opposite Waihi a dome-like elevation crowns a pyramidical wooded hill, called Hakiri: the top of this cupola is accessible, although with great difficulty, and served in former days as a retreat for the natives. Its formation is a decomposing trachite, and it has probably been pushed up into its dome-like shape through the basaltic rock which is seen at its base; or it may have wasted away to that shape from the effects of rain and climate. To the northward are the hills which separate Wangaroa from Mango-nui, and which are called Tara Tara: their step-like outlines give us an insi ht into their formation. The south side of the harbour is likewise rocky, and consists of much fissured wakke and basalt. The harbour itself is very spacious and deep, possesses anchorage for the largest fleet, and is sheltered from all winds. As a harbour it ranks with the best in New Zealand, and the beauty of its scenery is nowhere surpassed. There is, however, but little available land in its immediate neighbourhood: to the northward the sea forms some inlets with flats, which are overgrown with trees; and kauri-timber is found on the neighbouring hills, but at some distance from

the coast, all that grew nearer the sea having already been cut down or destroyed. Several vessels have here been laden with timber, and craft of small burden have been built here. About 2000 natives live in the immediate neighbourhood of this place, part of whom have become Protestant, part Roman Catholic converts. Mission-stations for both confessions are established here, and the natives seem to be in a fair state of advancement. They belong to the tribe of the Nga-pui, who took possession of the country after the original tribe had been conquered and nearly destroyed by E'Ongi. This original tribe was the one that was led on by the chief George to destroy the Boyd. You ask in vain for people who took part in, or know much of, this affair: the short time of thirty-one years has been sufficient for a whole tribe to disappear. Of this, however, I became convinced, that a small portion only of the blame rested with the natives. E'Ongi received in his last fight here the wound of which he afterwards died.

Besides the missionaries, about a dozen other Europeans, mostly sawyers, live in different parts of this district; but, with the exception of Mr. Shepherd, the Church missionary, no one has made any attempt to cultivate the soil.

About two miles from the south head of Wangaroa harbour a beautiful red and variegated marble is found on the coast, of a close fine grain, and in

sufficient quantity to become of importance for domestic architecture at some future time. This marble occurs in connection with chloritic and argillaceous slates, and seems to belong to the transition or secondary series, if we may judge from its mineral character, for it does not contain any fossils.

The entrance to the harbour can be easily found, being opposite to the northernmost of the Cavelles, a chain of islands chiefly of basaltic formation, and extending along the coast towards the Bay of Islands. The island opposite to the harbour is resorted to by the natives for fishing; but otherwise it is a hilly and exposed spot of no importance.

CHAPTER XVI.

Wangape and Hokianga.

We now return to the western coast. If we travel from Kaitaia towards the source of the Awaroa, we see its valley separated from the coast by undulating hills of basaltic structure, and covered with forest. Where the basaltic rock is found, the soil is generally good; and I have no doubt that in the course of time these hills will all be cultivated, and thus increase the area which I have assigned to the district of Kaitaia. I do not include in this the hills in the middle of the island, to which Maunga Taniwa belongs: they are too steep ever to be anything but forest-land. The coast from Waro to Wangape, or False Hokianga, fifteen miles to the northward of Hokianga, is bold and rocky. Wangape has never been surveyed. Its entrance is about 200 yards wide; it then expands into a fine basin, surrounded by low wooded hills, and appears to afford no shelter for shipping. The natives have extensive plantations, and belong to the tribe which lives at Hokianga.

Passing from Kaitaia to Hokianga, the bridle-road ascends nearly to the summit of Maunga Taniwa, and then proceeds in a different direction. We leave it here by turning to the westward, and, descending rapidly, soon arrive in a valley, through which a mountain-stream flows, which in its upper part has formed alluvial land about five or six miles broad and eight miles long. This river is the Mangumuka; its length, from Maunga Taniwa to the point where it joins the estuary called the Hokianga, is about twenty miles. At the upper part of the valley there is flat and fertile alluvial land, bounded on all sides by wooded hills; the river, running in a bed of whinstone pebbles, at some places deepens, at others shoals, and its banks bear signs of frequent floods. Lower down its depth becomes more equal, and for about ten miles from its embouchure into the Hokianga harbour it admits vessels of moderate burden. This lower part is bounded on both sides by steep hills covered with kauri-trees, but the best of them have been cut down near the water's edge. So much has been said about Hokianga, that in speaking of it I may confine myself to a few words. The estuary is almost wholly bounded by steep hills, which, after the kauri has been cut down, will not repay the trouble of cultivation. But the largest timber-trees, those fit for the Royal Navy, are nearly all gone: those that remain are good for logs, but not for spars; and therefore the timber-trade alone is not sufficient to repay the set-

tlers. The estuary is joined by several fresh-water tributaries, which have a little cultivable land on their banks; this is especially the case at the principal stream, and at the Waima near the entrance into the harbour; but the alluvial land bears a very small proportion to that which is clayey and useless. The good land is in the hands of the natives, who are branches of the Nga-pui and Rarewa tribes. They have cultivated small patches, and that portion of the land which they do not make use of might advantageously be occupied by a small number of European peasantry. But the nature of the country forbids any other kind of settlement. The harbour, however, although a bar harbour, can be entered by large vessels, and as there is a pilot on the heads there is no danger. There are already 200 Europeans settled on the Hokianga, traders and sawyers, who found ample employment as long as fine spars and cheap labour were to be obtained. But all this is now greatly changed.

The first Wesleyan mission-station was established at the Hokianga, and has been so effective that nearly all the natives are Christians. There is a printing-press at Mangungu, from which a few prayer-books have been issued A Roman Catholic missionary also resides here during a period of the year. The hills in the neighbourhood of Hokianga consist of argillaceous slate, covered with a white stiff clay, characteristic of the kauri-land. In

several places basaltic rock is found underlying the slate.

Hokianga is noted for its wet climate, and the thick fogs which envelop it long after the sun has risen above the horizon, whilst in other parts of the island they are scarcely ever met with.

CHAPTER XVII.

Waimate, Lake Maupere, and Thermal Springs.

After emerging from the hills which surround Hokianga on all sides, and which are still covered with a primitive forest of pines, we descend into a comparatively level country; and about fifteen miles from the head of the harbour we leave the bush, and the country is open to the Bay of Islands. We may regard the whole country to the westward and northward of the Bay of Islands as a volcanic table-land. If we enter this table-land from Hokianga we have to our right the Lake Maupere. In its immediate neighbourhood is an ancient crater, which forms a regular cone, with the exception that the western margin has fallen in. Large angular pieces of a very scoriaceous and vesicular lava of different colours, and amygdaloidal basalt, cover its sides and base. With much labour the natives have collected these rocks into mounds, and have cultivated the black soil between them. The lavas and the crater closely resemble those in the Auvergne. In general the lavas of New Zealand

are so hard, that time and the atmosphere have scarcely any influence on them. When we speak of a volcanic country we generally associate with it the idea of fertility; but this is true in particular cases only. If the ejected matter be mud or ashes, in forty or fifty years, or even in less time, it is clothed with vegetation, and fit for planting, as we see in the fruitful regions around Etna and Vesuvius: but it would appear that the masses thrown up by these Polynesian volcanoes have rarely consisted of such soft substances, but have flowed out as lava, forming hard scoriæ, like the slaggy refuse of an iron-foundry; and it will therefore easily be understood that the lands immediately at the base of the numberless volcanic cones which we see in New Zealand are not always those best suited for agricultural purposes. The lake which I have above mentioned is about one square mile and a half in extent, and apparently of great depth. In some places its borders are steep, and consist of basaltic lavas. It is perhaps an old crater; and, indeed, there is a tradition amongst the natives that a large village with its inhabitants was suddenly engulfed during an earthquake.

Several conical craters, similar to that above mentioned, only with more perfect funnels in their centres, lie to the eastward of Waimate. The interiors are covered with vegetation, and all appear to have long been in a state of repose.

A few miles to the southward of Waimate are

some curious thermal springs. In order to visit them we leave Waimate, and ascend a hill, from which three of the volcanic cones above mentioned present themselves to our view, in an extensive depression of the table-land below. The field is spead over with fragments, often more than fifteen feet in diameter, of a slate-coloured basaltic rock, the spaces between which are covered with fern and flax; while here and there are patches planted with Indian corn and potatoes. After passing a small native settlement, and crossing a ravine, we ascend a ridge of hills, very barren and steep, with a white clay on the surface, and evidently covered in former times with the kauri-pine. We now come to a lake about one mile in circumference. On its shores are black and half-burnt stems of kauri, and the soil in the neighbourhood is covered with efflorations of pure sulphur. At a little distance is another lake, called Ko-huta-kino, smaller than the former, and near this are the mineral springs. There are several of them, all close to the lake. The first which I examined was strongly aluminous, and of a temperature of 62° Fahrenheit. A few feet from it was a tepid spring, of a milk-white colour and an alkaline taste: its temperature was 124°. A third was acidulous, with a temperature of 154° Fahrenheit. In another, over which rose strong sulphuretted hydrogen gas, the thermometer stood at 133°, while the temperature of the surrounding air was 80° Fahrenheit (Dec. 4. 1840).

A small creek discharged itself into the lake through a narrow gulley. The gaseous emanations of sulphuric acid have much altered the argillaceous rock, parts of which have become white and red, while in other portions it has changed into a species of clay, covered with sublimations of pure alum, sulphur, and different sulphates. There are several other springs in the neighbourhood, which mix their waters with the creek, and impart to it an increased temperature.

I found here some native women, with their children, living in a temporary shed. The children were affected with cutaneous and scrofulous diseases, especially ringworm and swollen lymphatic glands, and had been brought to this place for the benefit of bathing in the warm sulphurous water, the beneficial effects of which were already very visible. The springs are often visited by the natives for this purpose, and, as might be expected, are of very great benefit in many of the disorders most common in these parts.

The surrounding country, especially to the southward, has to a singular degree the barren and desolate aspect so often observed in places celebrated for their salubrious mineral waters. Scarcely any verdure is seen on the hills of the neighbourhood: it is only in the ravines that the uniform brown tint of stunted fern is interrupted by the green of some sheltered groves.

There seems to be no doubt that the sick will

flock to these baths in the course of time, especially as the distance from the Bay of Islands is trifling, the communication easy, and the valley well sheltered from the winds.

Waimate, which is situated about fifteen miles to the westward of the Bay of Islands, has a very European aspect. A church has been built, and in its neighbourhood are the houses of the missionaries, surrounded by rose-trees, and other plants of foreign extraction. There is a great want of flowering plants in New Zealand, and every introduction of such improves the landscape. In the neighbourhood are the poor and slovenly huts of the natives, forming rather a painful contrast. However, when I saw the natives in church on the Sunday, most of them were cleanly dressed in the European style; and the work of *Europeanizing* them seemed to be gradually progressing.

Waimate was chosen many years ago as the agricultural settlement of the Church Missionary Society, and has been ever since the residence of an ordained clergyman. Although convenient as a Mission-settlement in many other respects, being in the common road from the Bay of Islands to Hokianga, and from the southern to the northern districts of the island, its immediate neighbourhood has no great pretensions in an agricultural point of view; and the produce of the Missionary farm has always been at a very low ebb. In fact, a great deal of the land has been relinquished, for the very sufficient

reason that it yielded nothing at all. The soil is a very light dusty volcanic earth. This is the reason why the natives have no plantations here, but prefer the ravines intersecting the plain, or go nearer to the groves, or to the base of the hills which bound the table-land, where the soil is more substantial. Some parts of the table-land towards the Keri-keri have a very superficial stratum of vegetable earth, and are strewed over with lapilli of ferruginous clay; where these are found the soil is almost useless. Good and bad land, indeed, alternate; the latter rather prevailing. On the banks of the Keri-keri and Waitangi rivers, which discharge themselves into the Bay of Islands, the land is of the best description; but even there masses of scoriæ have to be cleared away, which will require a great expenditure.

The Waitangi forms a picturesque cascade near its outlet into the Bay of Islands. Below the fall the basaltic rock in the banks of the river shows somewhat of a columnar structure.

The neck of land which separates Waitangi from the Keri-keri is claimed by Mr. Bushby, the former consul of New Zealand, and contains some very good land and pasturage.

The vegetation which covers the table-land is but little varied: fern, tupakihi (Coriaria sarmentosa), Dracæna australis and indivisa, and Gaultheria, are the most common plants. That curious lichen the Cenomice retispora is found in

abundance. A few groves of trees in the neighbourhood of Waimate contain chiefly puriri, tarairi, and high stems of fuchsia.

These groves were formerly used as burying-places by the natives, who suspended coffins containing the bodies of their dead to the trees, which has made them sacred, and is perhaps the cause of their not having shared in the destruction which has attended the greater part of the forest.

The natives living in this neighbourhood belong to the Nga-pui, who were formerly one of the largest tribes in New Zealand, but have very much decreased, notwithstanding the ascendency which the conquests of E' Ongi gave them over many other tribes. They live much dispersed in their small villages. Remains of their ancient pas are visible on the hills in the neighbourhood of Waimate.

A few miles to the northward of Waimate is the Keri-keri river, where there is a mission-station. The intervening land is very inferior, and especially around the station; but higher up the Keri-keri it is decidedly good. The Keri-keri is a small stream, forming a fall about two miles above the station, opposite to which there is a rapid, presenting a barrier to the farther ascent of the tide. Small vessels can come up as high as this point. The estuary of the Keri-keri has the appearance of a broad river, and presents some fine sites for farming establishments on its borders.

The waterfall of the river Keri-keri (a water-

fall is called Waianiwaniwa in the native language, meaning rainbow-waters) has a very picturesque effect. The river is only about twenty yards broad, but the fall is over a basaltic escarpment ninety-five feet in height. This basalt overhangs a soft formation of a grey volcanic sand, which has been washed away from under it for about thirty feet, so that one can walk behind the falling cascade. The spray of the waters gives rise to a vigorous vegetation all around, and this place was a favourite spot of that excellent botanist Mr. Cunningham. There is, indeed, a greater assemblage of the flora of New Zealand in this neighbourhood than in any other place so near a shipping-place.

The banks of the Keri-keri are also the only known habitat of the elegant Clianthus puniceus, a leguminous plant, which the natives appropriately call parrot's-bill—ko-waingutu kaka. In the neighbourhood of the mission-station are the remains of the pa of E' Ongi, the scourge of New Zealand. His warlike extravagancies, however, have more than anything else contributed, by exhausting the strength of the natives, to bring about that state of repose so favourable to the progress of European civilization. The blood spilt with the sword which he received from the hands of royalty, when in England, was, as it were, the fertilizing dew in the hearts of the survivors, preparing them for the seeds of civilization, as he had too much weakened his enemies for them to think of revenge. But the man

was as good a hero as many who have appeared on the modern stage, and had perhaps more just pretensions to natural talent: and as it is not probable that he will be honoured with a column as a sign of public gratitude for his butcheries, we may as well, in honour of his memory, transcribe from the report of an eye-witness, the missionary Stack, the following particulars of the death and funeral rites of this warrior:—

"Patuone," he says, "who has just returned from Wangaroa, called this evening. I asked about E' Ongi. He told me several things, all of which I felt interested in listening to, as connected with the end of this extraordinary chief. I perceived that Patuone spoke of him in the most affectionate manner.

"When he and his party arrived at Pinia, where E' Ongi was, they found him so emaciated, that they were much affected. They all, as is usual, wept together; after which they informed him that they feared he would soon die: to which he replied in the negative, saying he never was in better spirits. After waiting sufficiently long with him to pay him proper respects, they were about to return, when he was taken suddenly ill, on which they determined to wait the result. Perceiving, by his inward sinking, that he was going, he said to his friends—'I shall die now shortly, but not to-day.' He called for his gunpowder; and when it was brought to him he said—'Ka ora koutou.' 'You will be

(or are) well.' This was addressed to his children. His meris, or battle-axes, muskets, and the coat of mail which he received from King George IV., he bequeathed on that day to his sons. After he had settled these matters, he spoke of the conduct of the natives after his death, as in all probability likely to be kind towards his survivors, saying, "Kowai ma te nia. Kai mai ki a koutou kaore.' 'Who will desire to eat you all? None!'

"He spent his last moments on the 6th instant (March, 1828), exhorting his followers to be valiant, and repel any force, however great, which might come against them; telling them this was all the 'utu,' or satisfaction, he desired; which intimated that he had had the question proposed to him—'Who is to be killed as a satisfaction for your death?' This abominable principle still exists in New Zealand of honouring the dead by human sacrifice. His dying lips were employed in uttering 'Kia toa! Kia toa!'—'Be courageous! Be courageous!'

"As soon as E 'Ongi ceased to breathe, all his friends in the pa at Pinia trembled for themselves; for they did not know but that the Hokianga natives would fall upon them, and send them as companions for their dead chief 'to the shades of night.'

"The Hokianga natives, to prevent suspicion, caused all their people to remain quiet in their huts, while they went to the pa to see E' Ongi's body dressed. On their approach, though they had used the above precautions, they perceived the people in

the pa shivering like leaves in the wind, till Patuone and the others bade them dismiss their fears, for they were groundless.

"A wish to keep E' Ongi's death private till he was buried, lest a party should come and attack the survivors, induced his children to determine to bury him, or rather to place him on the wahi tapu, or sacred place, the day after his death. This Patuone reproved them for, saying—'I have only just become acquainted with those who wish to bury their father alive!' He was not buried, therefore, for some days; which were spent in paying all the honour which the New Zealanders were capable of to the remains of the once renowned E' Ongi. This time the natives spent in haranguing, crying, cutting themselves, dancing, and firing muskets."

There are now no natives whatever living on the Keri-keri; and it seems, therefore, useless to keep up the station. Most of the land on the banks of the river is the property either of the mission or the missionaries.

Below the station the basis of the soil is basaltic. It seems as if an immense crust of this rock had been elevated to near the surface. To the northward of the Keri-keri, as far as Wangaroa, the land is mostly hilly, covered, as I have already observed, in the middle of the island, with primitive forest. Near the coast almost the whole forest is gone; herds of cattle and horses feed well upon the young fern and shrubs, although there is no grass-pasturage.

Sheep looked in a rather bad condition; but the principal objection to sheep-farming in New Zealand is on account of the seeds of the Acoena sanguisorba, a herb spreading all over the country: these attach themselves so firmly to the wool, that they cannot be separated in the washing. About half-way between Wangaroa and the Keri-keri, on the outskirts of the forest, we pass an agricultural settlement of a European. Some natives live in the fertile ravines which run off from the hills towards the sea-shore: off the latter are many rocky islets. The shore forms several small bays, of which Mataute is one of the finest. On the slope of the hills, which surround this bay like an amphitheatre, an excellent hard greyish marble crops out. The bay is about two square miles in extent. On its shore is a native settlement.

Between Mataute and Wangaroa there are two other bays of similar description—Waio and Tauranga.

In the latter, a marly limestone in horizontal strata appears on the side of the hills; it breaks into slabs about an inch thick. To the northward the hills inland present a perpendicular escarpment, and the limestone displays the interesting phenomenon of a dendritic dyke of whinstone (Lydian stone) injected into its mass. The limestone is altered where in contact with it, and inclines at an angle of about forty degrees; a few paces from this the strata are again horizontal.

On the Bay of Tauranga there is some land cultivated by a European.

Along the coast from the Bay of Islands to Wangaroa is found in many places an excellent reddish and variegated marble, alternating with whinstone and slates.

From Tauranga a path leads to Wangaroa, through a beautiful and fertile valley, sheltered by the hills of the coast from the winds; in it flows a small river, which discharges itself into the harbour of Wangaroa already described.

CHAPTER XVIII.

Bay of Islands.

THE Bay of Islands has been more resorted to by vessels than any other harbour of New Zealand, and it is undoubtedly one of the best, if not the very best, in the country. Queen Charlotte's Sound may, perhaps, be ranked as high, being equally sheltered and safe. A great deal of controversy has consequently arisen as to whether the Bay of Islands would not have been the most eligible place for the foundation of *the* commercial capital of New Zealand. Its advocates refer especially to the great number of vessels which for several years have annually resorted to this harbour for the purpose of obtaining provisions and of refitting, and to the number of Europeans already established there. But I must observe that the vessels which selected this harbour came principally for cheap provisions, which they found as long as there was no increased demand, and that they went to other places as soon as the prices rose. It seems to me that at present more is wanted than a good harbour to constitute the most eligible place for the

capital of New Zealand, and that the harbour which offers the greatest facilities for assembling around it a large agricultural population, and which possesses the easiest communication by land as well as by water with the surrounding country, has the best chance of ultimate success. Now, the Bay of Islands possesses none of these advantages: the country which surrounds the harbour consists almost entirely of hills, which are steep, although not of any great height, and alternating with ravines, which continue far inland. These hills are formed of a yellow argillaceous stone, and a basaltic rock, and it is only in the narrow ravines that there is a little fertile soil. Even where the coast-hills were formerly covered with forest, it has now disappeared, and is only met with some miles inland. Towards the harbour these hills form diminutive bays, inaccessible from the land. The different parts of the harbour are separated by arms of the sea, so that the construction of roads to connect them with each other, and with the interior, is impossible. There is, besides, scarcely sufficient room in any of the bays even for a moderate-sized town, unless placed on the side of a steep hill. The only exception to the mountainous character of the place is the table-land extending from the Waitangi towards the Hokianga and the Keri-keri. But this district, as already observed, cannot be ranked amongst the best portions of New Zealand,

and has, moreover, the disadvantage of having no water-carriage.

Besides this flat district, there is a valley with a considerable extent of excellent land up the Kaua-kaua, an arm of the bay, stretching to the south, into which runs a small fresh-water stream. This valley is in the hands of a large native tribe, who cultivate it very extensively.

The number of whaling and other vessels in the Bay of Islands has much decreased during the last twelve months. This is chiefly owing to the increase of Europeans, who consumed the scanty produce of the region. If the necessaries of life ever come down to reasonable prices in New Zealand, and if at the same time liberal measures be adopted towards foreign whalers, there can be no doubt but they will all again resort to that country, situated as it is nearer to the whaling-ground than any other.

There exists already a little town at Kororarika, a small cove in the bay, which offers great facilities for shipping, but is difficult of access from the mainland. The same is the case with Russell, the proposed Government town, at the mouth of the Kaua-kaua; whilst Victoria, the embryo capital of Mr. Bushby, possessing the finest and most level site for a town, and commanding the Waimate table-land, and therefore the best communication with the interior and Hokianga, as well as with

the districts lying to the northward, has no place for the anchorage of vessels, and is, moreover, open to the whole force of the north-easterly winds.

The Kaua-kaua has the aspect of a broad river, bounded by steep and wooded hills. In small nooks on the shore Europeans have erected humble-looking houses. Inns are not wanting, and abundance of fowls, geese, and ducks render the scene very homely and English-looking.

CHAPTER XIX.

Wairoa, Kaipara.

PROCEEDING from the head of the Kaua-kaua to the Wairoa, the principal stream which flows into the harbour of Kaipara on the western coast, we follow the windings of a fresh-water stream, which joins the inlet of the sea, and on the banks of which the neat and well-tended plantations of the natives indicate a growing industry. After crossing over some hills we are again led into the valley of the river; and here the eye is attracted by picturesque groups of limestone, which in various shapes crop out at the slope of the neighbouring hills, often resembling ruined castles or towers, sometimes half-concealed amongst beautiful tree-ferns and other trees. The valley forms a basin of alluvial and very fertile soil, as is indicated by the coriaria, dracæna, and phormium, which only grow in the best situations. The name of the valley, as well as of the river, is Waiomio. From this point to the part where the Wairoa first begins to be navigable for large boats is a good day's journey. The country consists mostly of low but steep hills, on which

here and there are the remains of the former kauri-forest, half burnt and rotten; but now nearly the whole surface of the region is covered with fern and manuka. The hills alternate with valleys, which, from the stagnation of the waters, are swampy, and contain here and there forests of the kahikatea pine (Dacrydium excelsum), the quickest growing in New Zealand, and consequently the least durable tree of this class. A swampy plain stretches to the eastward as far as the rugged hills of Wangari Bay: it offers some fine situations for farms, and would afford excellent opportunities for forming pasturage by the cultivation of artificial grasses, as the land is rich, and the swampy parts might easily be drained. No natives live here; but my guides assured me that some slaves had lately run away from the Bay of Islands, and lived concealed in the bush—a circumstance which rarely happens in New Zealand, as the natives are too much accustomed to a settled life; and even when they do conceal themselves, they are obliged to cultivate the land in order to obtain food.

The first natives I fell in with were a cheerful and industrious set, near the head of the Wairoa, who were cutting and squaring kauri-trees in a very workmanlike manner. They all left their work on my arrival, as the evening was approaching, and accompanied me to the banks of the river, where they had temporary habitations. The children amused themselves with rowing-matches, their

parents cheering them on, or taking part in the race; and I had a good opportunity of observing the healthy and symmetrical form of their bodies, the graceful and vigorous play of their muscles: the scene offered an excellent study for an artist, or for an admirer of the human form when neither impaired by an artificial state of life nor distorted by the *arts* of fashion. The little boys dipped their oars into the stream with astonishing precision, to the measure of the following boat-song, which was chanted by one of the party:—

HE TOIERE.

E toia ana pehia; ana kokiri e tiaia; e rumakina, e te wawati; tena, tena, tena te rae ra; e watiia, e te ihu, e waenga, e te kei, e tango katoa; e ana te kaha ko te rite, ko te rite, tena wina, tena wiua, e tiaia, tiaia, tiaia, ana toia, toia, toia; taki, taki wakarere; he ruru kou koua; tena tangohia, e te rae ra tango mai, he piko tango atu, tena kia mau; ae koia ia; tena kia puta; koiri, koiri watiia; uere tai tua, kia rite, tena toia, toia, toia, e kia ngoto i, i, i, i pai rawa; kia rite, takoto wakawiria; e ka mahue, e ki te wana toia, toia, toia.

(*Translation.*)

A CANOE-SONG.

Pull, push, launch, dip, bend, turn,
Now, now, now.
The point there: bend, at the head,
In the middle, at the stern;
Now pull all together.
Be strong all together, all together.
Dip quickly, now dip quickly,
Dip, dip, dip.
Now pull, pull, pull,
Taki, taki, taki;
Now fetch the point there;
Now take in a reef.
Take out a reef;

Now hold fast—
That is it.
Now let it emerge.
Koiri, koiri, watiia.
All together now,
Pull, pull, pull ;
Dip deep, i, i, i, i.
Very well ; all together ;
Lie down ; twist it ;
Let it go.
Be strong, pull, pull, pull.

We afterwards sat around the fires, and song followed song until the night was far advanced. It is not astonishing that savage life should possess so many charms even for sober spirits. The naïveté of manners, the childlike expression of joy, innate to people in a state of nature, vanishes before the formalities of our civilization : the hospitable savage is changed into a reckoning and deliberating merchant ; the incumbrance of our clothing in a warm climate makes him stiff and helpless ; and our complicated food soon renders him unhealthy. Is he the gainer or loser by this change ?

Kaipara Harbour, into which the Wairoa and other rivers fall, seems to me—on account of the quantity of timber-trees on the shores of the rivers, the length of their navigable course, the extent of the available alluvial land on their banks, and the immediate neighbourhood of the seat of government, Wai-te-mata—to be deserving of an early attention as a place where capital and labour may be very profitably employed.

The accident that befell the New Zealand Company's vessel Tory, which ran on a sand-bank at the entrance of this harbour, the total loss of the timber-vessel Aurora, and the wreck of the brig Sophia Pate, when many lives were lost under circumstances the most distressing—all of which shipwrecks happened in the last two years—have obtained for this harbour a very bad reputation. But I am inclined to ascribe these accidents to the very deficient knowledge possessed of the harbour, which has never been properly surveyed, while incorrect and untrustworthy sketches pass into our charts as surveys.

Kaipara is not a bar-harbour, but a channel-harbour; it is a large basin, into which a tide, rising ten feet at full and change, rushes with great velocity, which, joined with the narrowness of the channel and our imperfect knowledge of the soundings, certainly occasions great danger. Westerly winds, which blow without intermission during some portions of the year, and increase the current setting into the harbour, are another inconvenience, as they prevent ships from leaving the harbour at all times. This, indeed, is the case with all the harbours on the western coast of New Zealand. Whether the shoals and sand-banks in the offing are shifting is not yet ascertained, but it is not improbable that such is the case. I am aware that, being no navigator, my opinion cannot claim much weight, but it certainly appears to me that, notwith-

standing all the disadvantages I have enumerated, there would be no real danger to vessels under the care of an experienced pilot in entering the harbour, if it were properly surveyed and the shoals well buoyed off. Many large vessels, as the Navarino and the Anne Watson, have entered and left it in safety.

At present there exists only a sketch of the harbour from a running survey of my lamented friend the late Captain William Symonds, which has the credit of being the most accurate, although it has been disfigured by a spurious lithograph in Sydney. Kaipara seems to be a harbour particularly adapted for steamers, as they can contend with the tide and contrary winds.

The harbour consists of several arms, which receive streams of fresh water; the westernmost of these is the Wairoa. At the point where you first fall in with this stream in coming from the Bay of Islands, and 130 miles from the heads of the harbour, its breadth and depth are those of the Thames at Richmond. It is navigable for canoes about eight miles above this place, where their farther progress is prevented by rapids. The Wairoa rises in the hills, on the northern slope of which the Waima, an arm of the Hokianga, has its source. The Wairoa is soon joined by the Otamatea, a river coming from the hills in the neighbourhood of Wangari harbour, and this receives in its turn the Oropaoa from the northward, and the Kaiwaka

and Wakaki from the eastward. Not far from the junction of the Otamatea with the Wairoa, the latter is joined by the Oruawaro, another stream of considerable size, although, as is evident from the breadth of the island at this part from coast to coast, not of any great length. Lower down the Tapara from the south and the Kaipara proper flow into arms of the estuary. The Kaipara proper follows a very serpentine course in a moderate-sized valley formed by the hills which bound the sea-coast between Kaipara and Manukao harbours, and separated from an inlet of the harbour of Waitemata, in the gulf of Hauraki, by a piece of land about three miles in breadth, and consisting of low hills, over which the natives frequently dragged their canoes in times of war. Not far from the highest point to which the tide reaches in the Kaipara proper another river joins it, which runs likewise within a very short distance of Waitemata.

The banks of all these rivers are bounded by hills of no very great height, which do not generally reach to the banks, and are often more than a mile distant from them; the banks are level, and consist of a somewhat clayey and fertile soil. The Wairoa continually carries down a quantity of this soil from the higher to the lower parts of the river, in consequence of which its waters have a yellow appearance. In the upper part of its course a beautiful and fertile valley joins it, which begins in the neighbourhood of Hokianga. Here the chief Parore

lives with his tribe, and cultivates the land. The banks of the Wairoa, with the exception of those parts which are of very recent formation, and of the portions which have been cleared by the natives, are covered with a thick forest of timber-trees of all descriptions, but especially the kauri-pine, which is always in the greatest profusion in hilly situations. I am not acquainted with any place in New Zealand where these trees are more plentiful, of greater height and diameter, and of easier access. The natives are constantly employed in felling and squaring them. The consequence is, that they are well supplied with all our commodities. One careful chief had collected quite a property from the fruits of his own labour and that of his tribe. As they also cultivate a considerable quantity of ground for their own use, and have a surplus quantity for sale, it may easily be foreseen that, if justly treated by their new government, they will prove in time a valuable and wealthy part of the population of the colony.

Small vessels can go up the Wairoa as far as the settlement of a Mr. Stephenson, eighty-five miles from the heads of the harbour, where there is a depth of twelve feet; but only fifteen miles lower down, at the farm of Mr. Forsyth, the river has water and a clear channel for vessels of any burden, and also anchorage close in-shore.

Timber is likewise found on the banks of all the other tributaries, especially of the Otamatea; and

everywhere there is sufficient land to enable the colonist to combine agricultural pursuits with the timber-trade, in which case alone the latter can prove profitable in New Zealand.

The inlet, which is joined by the Kaipara proper, is navigable for large boats as far as the tide runs up. On the hills between Kaipara and Manukao there is much kauri, and the river affords great facilities for conveying the timber down to the sea. It is very serpentine in its course, and forms a number of paddocks of alluvial land; these are at present swampy, but a little drainage would effectually lay them dry. This low land is here and there covered with groves of the kahikatea-pine and the puriri (Vitex litoralis), but in general only fern and flax grow on it.

About forty Europeans live on the Kaipara estuary and its tributaries, and about 700 natives belonging to the tribe of the Nga-te-Whatua. The Europeans claim a great part of the land, and much difficulty will arise in settling their various claims, as the land was sold to them by the Nga-pui, the natives in the Bay of Islands, who formerly conquered and drove away the original proprietors of the soil. But a short time since these latter again returned, and their numbers have increased; whereas the contrary has been the case with the Nga-pui, who have silently given up all claims to the land.

There is a Wesleyan missionary-station up the Wairoa, but in an unfavourable place, there being

scarcely any natives within a great distance of the station. In consequence of this there has not been here that success which in other parts of the island has attended the efforts of the missionaries.

The general aspect of the Kaipara and its tributaries is far more open, and the quantity of excellent agricultural land more extensive, than at the Hokianga, and, from the abundance of its timber, Kaipara is a place admirably adapted for ship-building establishments; its advantages, therefore, as a settlement, would seem to outweigh the inconvenience resulting from the harbour being situated on a lee-shore and of somewhat difficult access.

There are many convenient places for a township and for dockyard establishments on the banks of the Wairoa.

The hills in the upper part of that river consist of the stiff whitish clay which characterises kauriland, here and there with a basis of a hard argillaceous slaty rock: lower down, on the left bank, are steep hillocks of basalt, surmounting which are the ruins of some ancient fortifications; on the right shore, and towards the sea-coast, is a soft ferruginous sandstone; inside and round the northern head the cliffs expose layers of lignite, generally four feet in thickness and superimposed to the height of about twenty feet by a white slightly consolidated sand, which softens by exposure to the water, and on a near examination is found to consist of decomposed pumicestone, of which large globular boulders are still compact. The lignite consists of

half-carbonized wood, besides kauri and pohutukaua, remains of tree-ferns, indistinct impressions of smaller ferns, and a kind of typha—all which plants are still found in the island. Extensive beds, four feet thick, of the same lignite, and overlaid by sandstone, are likewise found round the south head of Hokianga ; they are then lost beneath the surface, but appear again near the north head of the Kaipara. The intermediate space, near the sea-shore, consists of sand-hills, which are covered with a running carex, and farther inland with a scanty vegetation of fern. In some places hereabouts I met with small carnelians, magnetic ironsand, and boulders of brown iron-ore.

In order to reach the harbour of Waitemata from Kaipara, we leave the Kaipara proper where it narrows and ceases to be affected by the tide. The road leads over hills of an unpromising aspect, but a most magnificent prospect over the surrounding country opens from them to our view. To the north we overlook the large estuary of the Kaipara ; to the west the valley of the Kaipara proper, its meandering stream, and the hills of Manukao, which are mostly wooded ; to the east grotesque-shaped hills on the coast ; and by advancing a little farther we overlook the basin of the Manukao and Waitemata harbour. The entrance into the Gulf of Hauraki is pointed out by Cape Colville, the southern headland, which is about sixty miles distant, and by the Great Barrier Island, which appears dimly on the horizon.

CHAPTER XX.

Gulf of Hauraki—Coromandel Harbour—Waiho, or the Thames —Waitemata Harbour—Auckland.

WHAT is commonly called *the Thames* is a very large estuary or gulf on the eastern coast of New Zealand, containing several harbours, and many islands of various dimensions, and receiving the waters of two rivers of considerable size. I give to the whole the name of the Gulf of Hauraki, although the natives apply this name only to the eastern part, which receives the river Waiho, or Thames, and the river Piako. If the denomination of "Thames" is to be retained, instead of the well-sounding native name of Waiho, this part of the gulf would be most appropriately called the "Frith of the Thames."

The northern headland of the Gulf of Hauraki is formed by Point Rodney; the southern headland is Cape Colville; the distance between them being about forty miles. Cape Colville is the extreme headland of a long promontory, forming the eastern limit of the Frith of the Thames; throughout its length runs a chain of wooded hills, with a sharp crest and steep declivitous sides, which are washed

by the sea both on the eastern and western coast; but on the latter the rocky line is interrupted by an inlet, which forms Waihao or Coromandel harbour: at the back of the harbour the hills, rising into remarkable pinnacled and pyramidical summits, serve as excellent landmarks for the guidance of vessels entering it.

To the southward this hilly chain continues along the eastern coast: at the foot of their western slope runs the Waiho, or the river Thames. Here the chain of hills assumes the name of the Aroha (Love) mountains, and borders the valley of the Thames to the eastward, shutting it from the sea. Besides the Waiho, another river, the Piako, flows in this valley, and has its embouchure close to that of the former.

Waihao or Coromandel Harbour is twenty-five miles from Cape Colville and thirty-five from the mouth of the Thames. It is surrounded by hills, which on the eastward rise in a series of longitudinal ridges to the height of about 1500 feet. To the eastward and northward a stripe of alluvial land runs at the base of the hills; but otherwise the shores, which consist of a sandstone conglomerate and trap, are so hilly that they render all communication difficult between the natives who live in the different small bays around the shores. The shore is covered with verdure, and pohutukaua-trees grow all around. The soil on the lower hills is fertile, and yields abundant supplies to the natives.

Coromandel Harbour has been resorted to by vessels for the trade in kauri-timber, which is abundant on the hills from Cape Colville to Kati Kati, in the Bay of Plenty, about 37° 30′ S. lat. Kati Kati is the southernmost boundary of this tree on the east coast of New Zealand. The spars were cut by the natives under the direction of the Europeans, and shipped either at Mercury Bay or at Coromandel Harbour.

A ship-building establishment might be carried on here with advantage, as other excellent timber, besides kauri spars, can be obtained, especially pohutukaua, perhaps the most durable crooked timber that exists. It must, however, be borne in mind, that, from the rugged nature of the country and from the scantiness of labour, the expenses of bringing down the timber would be very great.

Coromandel Harbour is better adapted for small than for large vessels, as, on account of the shallowness of the water, the latter cannot enter far enough to be effectually protected from the outer swell, although there is good holding-ground. Provisions of all descriptions, poultry, pigs, and vegetables, can be obtained from the natives at a cheap rate.

The natives who live in Coromandel Harbour are subdivisions of the Nga-te-paoa, and are called the Nga-te-maru, the Nga-te-tamatera, and the Nga-te-wanaunga. The whole tribe of the Nga-te-paoa amounts to 5000, who do not all live in Coromandel Harbour, portions of them being established

at the entrance into the river Thames, at different parts of the Gulf of Hauraki, and at Mercury Bay. They have greatly diminished in number in consequence of their late wars, especially those which they waged with the Nga-pui in the Bay of Islands. They formerly stood in hostile relation with the Nga-te-hauwa, who live at Matamata, in the valley of the Thames, but a short time ago they made a solemn peace with them.

From Coromandel Harbour to the entrance of the river Thames the coast is rocky, and there is no communication between Coromandel Harbour and the valley of the Thames by land. The hills are mostly basaltic or amygdaloid, and many fine red and white carnelians are found hereabouts.

Not far from the entrance into the Thames is a station of the Church Missionary Society, occupying a most picturesque position on the slope of the eastern mountains, which are crowned by a forest of lofty trees. An arm of the sea, which is joined by a creek, the Wawakaurunga, bathes the foot of the hills, where the buildings are placed; a fertile alluvial flat spreads along its left shore, on which stands a large native fortification, Kaneranga, often containing nearly 2000 inhabitants.

There is no harbour, properly speaking, in the Waiho, or Frith of the Thames, and large vessels cannot approach, as a mudbank stretches out between the Thames and the Piako, which have their embouchure close to each other: there is, however,

a channel into the Thames with a minimum depth of one fathom and a half at dead low water; higher up the depth of the water is three fathoms to three fathoms and a half. Small vessels have gone up the river nearly fifty miles, and large boats can ascend about ninety miles. A channel also leads into the Piako, but this river is the smaller of the two, and at low water admits boats only.

I have already observed that the land on which the kauri-pine grows is, even when cleared, of no use for any other purposes, both from the rugged nature of the ground and from the quality of the soil. But at some distance from the entrance into the Thames, the eastern coast hills, which, seen from the valley, look like a steep artificial embankment, are flat on the top, and slope gradually down to the sea-coast in the Bay of Plenty: the kauri is scarce; and the forest is a mixed one, in which rata, rimu, totara, and hinau are the most conspicuous. Such land *is* available, if cleared of the forest; the kauri being confined to a few steep hills and ravines on the eastern coast. It is one of the most remarkable phenomena in botany, that an immense tree such as the kauri should be satisfied with places where one would scarcely have supposed it could have taken root.

The valley of the Thames is about one hundred miles long, extending to the neighbourhood of the inland lake of Roturua, and, with the exception of the banks of the rivers, where the kahikatea pine

grows to great perfection, the whole valley is occupied by fern, flax, and manuka. This vegetation is interrupted by large raupo (typha) swamps, which increase towards the mouths of the rivers, where the country is low and subject to inundations. Flights of the common brown duck,[1] and of the blue-breasted red-billed water-hen,[2] people these swamps. To the westward the valley of the Thames is bordered by hills; but these are only defined and separated lower down towards the frith. Higher up, the valley of the Thames may be said to be united with that of the Waikato and Waipa, with the exception of some distinct hilly groups. From the hilly ridge several narrow valleys open towards the frith, and here are the native settlements of Wakatiwai and Waihopukopu. Opposite the island of Waiheke the land becomes comparatively flat and low; the coast consists of soft sandstone, in cliffs of horizontal stratification; and this is the character of the country towards Waitemata, where the government town of Auckland is situated. In passing from the outlet of the Thames to the latter place the aspect of the shores is highly picturesque. A luxuriant vegetation covers them to the water's edge, or alternates with the clearings made by the natives. As we approach Auckland several regular volcanic cones rise over the table-land which stretches across the island to the harbour of Manukao. We pass a number of islands, of which that of Waiheke is

[1] Anas superciliosa. [2] Porphyrio australis.

overtopped with stately kauri-pines: from every crevice of the rocks on these islands, even where washed by the salt water, the glossy green of various shrubs meets our eyes. These islands in the Gulf of Hauraki, luxuriantly wooded as they are, and divided from each other by deep straits, afford a succession of ever-changing scenery, and give the region a variety which is unrivalled by any other harbour in New Zealand, in most of which steep and uniform surrounding hills shut in the view, and confine it to a narrow space.

The harbour of Waitemata is the most important in the Gulf of Hauraki. It lies at the westernmost extremity of the gulf, and stretches its ramifications towards the harbours of Manukao and Kaipara. The entrance into the harbour is distant from Coromandel Harbour forty miles, from the embouchure of the Thames forty-five miles, from Point Rodney forty miles, and from Cape Colville forty-five miles.

The latitude of the flag-staff in the military barracks at Auckland is 36° 51′ 27″, its longitude 174° 45′ 20″ E.

The northern head of the harbour forms a peninsula at high-water. Two conical hills rise here, of which that forming the north head, Takapuna, is 216 feet high, of an irregular form, and consists of a hard basaltic rock; the other, at a little distance from it, Takarunga, has on its summit a crater, partially broken in. It is 279 feet high, and consists

of black and reddish vesicular lava. There is now a flag-staff erected on it. The navigable entrance into the harbour is only three-quarters of a mile broad, as it is narrowed by a reef, the outermost point of which is marked by a beacon, and is distant three-quarters of a mile from a curious bastion-shaped sandstone rock, which may be regarded as the southern head. Within the heads the channel widens to an average breadth of one mile; it has its greatest depth on the northern shore, and is shallow on the southern, on which the town of Auckland has been laid out, at the distance of two miles and a half from the south head.

The depth of the harbour is from six to nine fathoms in the mid channel, and three and three and a half at the sides. The inlet continues about ten miles to the westward, sending an arm to the northward towards the river Kaipara, and another to the southward towards the harbour of Manukao. The northern arm has a deep but very narrow channel near the northern shore; but shoals and rocks obstruct the passage leading towards Manukao, except for large boats, which can go up for several miles in the river-like inlet, and between its upper part and the harbour of Manukao there is a portage of one mile and a half.

The southern shore, or that on which Auckland stands, consists of cliffs of a soft pepper-coloured sandstone, or sandstone conglomerate, with occasional seams of lignite. The country itself is

slightly undulating, and forms small bays, which open towards the harbour, and are partially wooded at the bottom. The rest is covered with high fern and manuka. In the immediate neighbourhood of Auckland there is no wood, but opposite to it a small stripe of kauri and other forest-trees near the sea-shore has escaped the general conflagration by which the greater part of the former woods has evidently been destroyed. From this spot the town is provided with timber and firewood. All this land is bad, as is also that at the head of the harbour; but the soil is much better in the immediate neighbourhood of Auckland, and thence towards Manukao, and to the eastward, where it is fit for all kind of horticultural and agricultural purposes.

One feature which contributes to the beauty of the scenery around Auckland is the pohutukaua-trees which line the coast, and which, about Christmas, are decked with purple flowers; but, unfortunately, one after another these beautiful trees are cut down, and thus the naked sandstone cliffs are laid bare, although these trees in no way interfere with architectural or commercial improvements.

Auckland is well supplied with fresh water, not only by the small water-runs in the valleys, but also by springs, from which it is readily obtained by digging a few feet below the surface.

Several volcanic cones rise in the immediate neighbourhood of the town, at the base of which hard scoriæ for buildings and roads can be obtained, and

which are easily worked; the sandstone, though soft, hardens by exposure to the air, and is a good building material.

A mile to the eastward of Auckland there is a small bay called Oraki; it has a narrow entrance, and forms almost a natural dock, and could easily be converted into one by means of sluices. To this place the few natives who form the scanty remnant of the once large tribe of the Nga-te-whatua, the proprietors of Waitemata, have lately returned from Manukao; they cultivate the land, and by supplying firewood and provisions, and by working for wages, have made themselves very useful to the town.

Still farther to the eastward another inlet, commonly called the Tamaki, leads towards Manukao; and here is the shortest portage into the latter harbour, it being only a quarter of a mile across. At the entrance into this channel is a bar, with six feet depth at low water, but inside the channel deepens; vessels of 200 tons have gone up for some distance, and large barges can go to the portage. The land on both sides of the Tamaki is excellent; that on the right shore is claimed by the Church Missionary catechist Fairburn, whose possessions extend from this point as far as to the Wairoa river, being an extent of about ninety square miles. A great deal of lignite is found on the Tamaki, but no wood, with the exception of jungle.

The government town of Auckland, considering

the short time it has existed, has made considerable progress. Its population, which amounts to more than 2000, has been drawn together from all parts of the island. A bank has been formed, fine barracks have been built of scoriæ; and were it not for a general spirit of over-speculation in land, without any attempt to explore the home resources of the island, there would be every ground for hoping that the place would gradually and steadily rise into importance. The thing that chiefly recommends the situation of this place for the central town of the northern island is its easy communication with the coast, both to the north and to the southward. An inland communication through Kaipara with the Bay of Islands can be effected in five days, even with the present insufficient means of communication. With the western coast, and with the interior, over Manukao and the river Waikato, nothing interrupts the water-communication but two small portages; and even with Cook's Straits relations can be easily established, either by the river Thames, or the Waikato and Waipa, and the river Wanganui.

The coast-trade particularly is of the greatest importance, as the nature of the country will cause its colonization at many different points at once: and already a great number of small coasting vessels communicate with Auckland.

We must not forget that the Thames and the Piako form an extensive agricultural valley, and that, as their natural harbour, Waitemata is preferable to Coromandel Harbour.

In short, it appears to me that there can be no question but that the place has been very judiciously chosen for the site of a town, as commanding a great extent of cultivable land in its neighbourhood, great facility of communication with the coast and the interior of the northern island, and as being a central point for the most powerful native tribes, the Nga-pui to the northward, the Waikato to the southward, and the Nga-te-hauwa to the eastward, separating them in a military point of view, but uniting them for the purposes of civilization and commerce.

The Gulf of Hauraki contains a number of islands, of which Aotea, or the Great Barrier, at the entrance into the gulf, and Waiheke opposite to the entrance into Waitemata harbour, are the most important. The former is nearly eighty miles in circumference, contains much kauri-forest, and possesses an excellent harbour at its north-western extremity; it is called the Great Barrier Harbour, and has only lately been discovered.

From the Great Barrier I obtained specimens of a copper-ore in a matrix of a decomposed micaceous slate. Some of the specimens contained nearly twenty-five per cent. of copper, the rest was sulphur, iron, and silica. I could not ascertain the extent and position of the vein in which it occurs; but, from the nature of the surrounding rock, I do not think it improbable that a mine of some importance will be found.

Waiheke is about thirty miles in circumference.

It has a harbour for small vessels, and there is an anchorage for larger ones in the channel which separates the island from the main. It consists mostly of a yellow argillaceous rock and basalt; it is wooded and hilly, and contains kauri, but has also many sheltered and cultivable valleys.

Both islands are claimed by Europeans, the latter by nearly half a dozen different parties. Barrier Island is the property of a merchant in Sydney, and some Europeans live there. In Waiheke there are some families of the Ngta-te-whatua and the Nga-te-paoa tribes, and also a European family.

Rangitoto is another very remarkable island;—between it and the mainland is the best channel into Waitemata. It is a cone, rising slowly from the sea, and has on its summit three cones, the middle one being the highest, a conformation very common to craters. Rangitoto is an immense heap of scoriæ, which in large hard masses surround it at its base and the greater part of its height; and it is only on the top that a few bushes have taken root. In the middle cone is a very perfect crater, about 150 feet deep. The highest point of the island rises to 920 feet above the level of the sea, and commands a most extensive panorama of the surrounding country.

The meteorological table at p. 285, which was kept at Auckland by David Rough, the harbour-master, and to which has been annexed a table of the average heights of the thermometer, taken by Dr. Johnson with Adie's register thermome-

ter, exhibits the state of the weather for one year.

In Auckland easterly gales generally occur at the full and change of the moon, and continue for two and sometimes three days. In the winter months they sweep with great violence over the exposed situation of Auckland. From the east the wind veers to the westward, and soon moderates. The most settled weather is with southerly winds.

Rains are very frequent, especially in the winter season. I have not the necessary data for comparing the quantity of rain with that in Cook's Straits, but from the scanty observations at my command I am induced to believe that rains are more frequent here than on other parts of the coast, which may perhaps result from the little distance between the western and eastern coasts. Frosts are rare in Auckland; in fact, the thermometer never stood lower than 36° Fahrenheit. The surface of the land being comparatively level, no impediment is given to the easterly and westerly breezes; the summer heat is therefore very moderate, and the thermometer only once rose as high as 84°. Many of the valleys in the neighbourhood of the town, which are sheltered from the gales, enjoy a mild and agreeable climate.

Earthquakes, which are sometimes felt in other parts of the island, have not been experienced in the Hauraki Gulf by the European settlers, nor could I learn from the natives whom I questioned on the subject that there existed any tradition of their having occurred in this region.

Meteorological Table, from 16th September, 1840, to 16th September, 1841.

Months.	Prevailing Winds.	Average Height of Fahren. Thermom.			REMARKS.
		Morn.	Noon.	Even.	
1840:		Deg.	Deg.	Deg.	
Sept., latter part.	S.-Westerly	56	59	55	Five days squally and showery weather. Two days stormy, with heavy rain from the eastward. Eight days fine weather.
Oct., first part.	S.-Westerly	56	63	54	Nineteen days fine weather.
		57	66	56	Three days stormy, with rain from the eastward. Nine days gale; squalls and heavy rain from the westward.
Nov.	S.-Westerly	57	63	53	Eighteen days fine weather.
		61	66	53	Two days stormy, with rain from the eastward. Ten days fresh gales, squalls, and shewery weather from the westward.
Dec.	Easterly .	63	69	58	Two days strong breezes and rain.
		66	72	60	The rest of the month very fine weather, with regular land and sea breezes; the sea-breeze setting in from the north-east in the forenoon, and veering to the southward in the evening.
1841:					
Jan.	First part N.-Easterly, latter part Southerly.	70	75	64	Ten days fresh breezes, squalls, and showers.
		70	76	61	The rest of the month light winds, sea and land breezes, and very fine weather.
Feb.	Southerly and S.-Westerly	68	73	63	Eight days stormy, with rain; the rest of
		69	74	59	the month light winds and fine weather.
March	Easterly .	67	70	59	Ten days stormy with rain; the rest of
		65	69	61	the month brisk breezes and fine weather.
Apr.	First part Easterly, latter part W. S.W.	59	68	56	Two days heavy gale from the eastward
		54	63	54	and much rain.. Seven days squally and showery. The rest of the month fine weather.
May	S.-Westerly	55	63	56	Three days easterly gale, and heavy rain.
		50	61	52	The remainder of the month brisk westerly breezes and frequent showers.
June	S.-Westerly	48	56	50	One day easterly gale and heavy rain.
		50	58	51	Nine days fine weather. The remainder of the month strong breezes, squalls, and heavy showers from the westward.
July	S.-Westerly	46	56	46	Seven days fine weather.
		47	56	46	Five days stormy and rainy from the eastward and south-east. The rest of the month strong breezes, squalls, and rain from the westward.
Aug.	First part N.-Easterly, latter part S.-Westerly.	49	59	55	Three days stormy and rainy from the
		50	58	55	north east. Seven days westerly gales, squalls, and showers. The rest of the month brisk breezes and fine weather. On the night of the 20th, the heaviest thunderstorm that had been experienced since the formation of the settlement.
Sept.	N.-Easterly, Westerly.	51	58	50	First five days light showers and fine weather; three days heavy gale, and much rain. Six days light winds, and fine with occasional showers. Two days strong north-easterly breeze, ending with much rain.

The MEAN TEMPERATURE of the different Months is represented in the following Table:—

Months.	Corresponding to our	Temperature.
January	July	69·3°
February	August	67·6°
March	September	65·1°
April	October	59·0°
May	November	56·1°
June	December	52·1°
July	January	49·5°
August	February	54·3°
September	March	54·8°
October	April	58·6°
November	May	58·8°
December	June	64·6°
Mean temperature of the summer months,		67·1°
Of the winter months		52·0°
Mean annual temperature		59·0°
Difference between the mean temperature of summer and winter, only		15·0°

The place which in our northern hemisphere corresponds in its mean annual temperature to that of Auckland (situated in lat. 36° 51′ 27″ S., and long. 174° 45′ 20″ E.) is Montpellier, in 43° 36′ N. lat., and 3° 52′ E. long. But in Montpellier the difference between the hottest and the coldest month is 68°, whereas in Auckland the difference is only 19·8°. The heat of the warmest month in Auckland corresponds to that of the warmest month at Vienna, which is situated in 48° 12′ N. lat., and 16° 22′ E. long.; but its coldest month is somewhat below the temperature of the coldest month of Lisbon, in 38° 43′ N. lat., and 13° 49′ W.

long. Such is the equalizing influence exercised on the climate by the insular position of the country and the proximity of Auckland to the coasts.

The usual rise and fall of the tides in Auckland is ten feet; but they are influenced by the easterly winds, which sometimes raise them to twelve or even thirteen feet: the time of high water at full and change is about $6^h.\ 45^m$.

The variation of the compass is 14°, the dip of the needle 61° 7′.

There are other harbours between the Gulf of Hauraki and the Bay of Islands, in all of which Europeans are settled, but very few natives. It would be tedious to do more than briefly mention them.

1. The harbour of Mahurangi is situated at a distance of twenty miles from Waitamata. It is of easy access, the depth of water is sufficient for every description of vessels, and there is secure anchorage. It has a southern and a northern passage, of which the former is the best, and has from seven to fifteen fathoms water. A division of the surveying department has been sent there, to lay out a town; but the place, though possessed of some timber, has no particular advantage for a township.

2. Matakana, a small harbour, a little to the northward of Mahurangi. It has two fathoms water at the entrance, with some kauri-timber on its shores: several Europeans live there.

3. Wangari, an extensive and sheltered harbour. In the neighbourhood there is much kauri-forest.

4. Tutukaka.

5. Wangamuma.

6. Wangaruru. In this harbour the ship Buffalo once took in a large cargo of spars.

CHAPTER XXI.

Harbour of Manukao, or Symonds Harbour.

I WILL now proceed in my description of the island, by relating the particulars of an expedition which I undertook from Waitemata into the centre of the island, to the volcanic group of Tongariro and Lake Taupo, thence to the eastern coast and along the valley of the Thames, back into the Gulf of Hauraki. In company with Lieutenant Best, of the 80th Foot, I started on the 31st of March, 1841. At the moment of my departure I had the disappointment of finding that all the natives whom I had engaged to accompany me, and whom I had brought with me from the northward, had absconded, enticed by promises of high wages in Auckland. I advise any one who intends to travel in New Zealand to avoid the towns, if he wishes to find natives, of whom a great number are required to carry provisions and baggage. In this case I was obliged to start without any of these men, the baggage being placed on a packhorse with which his Excellency the Governor had kindly furnished me; and we trusted to accident to find

natives on the road or in one of the next settlements.

The country between Waitemata and Manukao is not only highly interesting to the geologist, but also very promising to the agriculturist. A number of cones rise above the even table-land, which is intersected by moderate valleys. All these cones are extinct volcanoes. The most interesting of them is Maunga-wao, which, according to barometrical and thermometrical measurement, has an elevation of 500 feet. Its base, which is lengthened towards the north-west, is strewed over with large masses of hard and black cellular scoriæ, often forming ridges, or heaped up by the former inhabitants into mounds, to enable them to cultivate the light black soil between. Near the summit, which is on the southern extremity of the hill, these scoriæ are more friable and of a reddish colour. Here is a funnel-shaped crater beautifully perfect and regular. The margin is a little lower towards the north, in the direction of the longer axis of the hill. The interior of this funnel, which is about 150 feet deep, contains small gravel of red scoriæ, and is overgrown with short fern. On the outer surface of the hill about twelve terraces rise throughout its extent, at regular intervals of about twelve feet. All the cones in the neighbourhood of Maunga-wao have this terraced appearance; and although the natives, who formerly had settlements on almost all these hills, have contributed much to

this regular appearance by levelling the steps, they are evidently in their origin the work of Nature, indicating the flowing of the ejected masses in one direction, that of the longest axis, and towards that side where the margin of the craters is least distinct. A great quantity of shells and quadrangular excavations, where their houses stood, bear witness of the former native inhabitants: the time is still remembered by old men of the Nga-te-whatua tribe when all these hills were covered with fortified villages and numerous inhabitants. But this unfortunate tribe, pressed by the Nga-pui from the northward, the Nga-te-paoa from the Hauraki, and the Waikato from the southward, have dwindled down almost to nothing, and their whole number in the neighbourhood does not amount at present to more than 200.

As the soil between the boulders is very fertile, it may be expected that, at no far distant time, the flanks of these cones will again form sheltered and productive gardens, as a large quantity of scoriæ will be consumed in the construction of roads, for which purpose they are particularly adapted.

At a distance of two miles from Maunga-wao is Maunga-keke. This extinct crater differs little from the former, except that there are scarcely any scoriæ on its base, and its summit is less regular. It is overgrown inside with brushwood and trees, and on the top stands an old pohutukaua-tree,

which serves as a good landmark for ships entering Waitemata harbour. Other conical hills are visible at a little distance.

The similarity of these craters with those of the Auvergne, and especially the similarity of their igneous products with those of the extinct volcanoes of that place, is striking. They surpass them, however, in the preservation and regularity of their funnel-shaped summits.

The distance across the country from Auckland to the head of Manukao Harbour is about seven miles; the land slopes gently towards the latter, and is covered with grass, flax, or the beautiful Veronica speciosa, which at the time of my visit was covered with its lilac flowers, filling the air with their perfume. Where this shrub grows it is a sure indication of the richest soil.

Between Auckland and Manukao there is no wood, excepting that where the plain is intersected by valleys a few shrubs grow. At the head of Manukao are some native huts, called Onehunga, occasionally inhabited by a few people of the Waikato tribe, who have abundant crops on their neighbouring cultivations, especially of maize.

The harbour of Manukao, an inlet about fifteen miles long and eight broad, sends an arm towards the Tamaki in the Hauraki Gulf. Between these points, as I have already mentioned, is the shortest portage connecting the eastern and the western sea. The upper part of the harbour is shallow, but there

is a navigable channel for small craft nearly to its head. Part of the shore at the head is strewed over with hard basaltic lava and cellular scoriæ, and it is not difficult to point out, in a cone on the southern shore, the source of this volcanic produce. The northern shore is cliffy, and consists of stratified greyish sandstone, or sandstone conglomerate. The stratifications of the latter are sometimes curvilinear. The cliffs are wooded with various trees; I observed especially Vitex litoralis, which is remarkable for its dark leaves, pink flowers, and cherry-like fruit,—Metrosideros tomentosa, Persoonia tora, Knightia excelsa, Laurus tarairi, Fuchsia excorticata, Myrtus bullata, Corynocarpus lævigata, Edwardsia microphylla, and the lower shrubs Rubus australis, Solanum laciniatum, Piper excelsum, and others. But this vegetation is merely confined to the coast, as the land which extends from the north shore of Manukao is not covered with anything of higher growth than fern, rushes, Leptospermum, Drosera, and a few Orchideæ. This land consists of low hills, the upper soil of which is a stiff clay; the whole has formerly been covered with kauri-forest, as is proved by the gum or resin, of which pieces are everywhere found. This tree grows now only near the heads of Manukao Harbour, and on the hills which extend along the seashore from Kaipara to Manukao. Here the kauri, as in other places, is associated with other pines, especially rimu, kawaka, tanekaha, and miro (Da-

crydium cupressinum, plumosum, Phyllocladus trichomanoides, Podocarpus miro); larger trees of the graceful and acacia-like Dacrydium plumosum are scarce; in fact, this pine seems to grow only to a very moderate size. Several creeks, capable of turning mills, flow into the harbour.

The north head of Manukao is formed by three rugged conical hills: inside the outer head the coast presents a bold rocky precipice, alternating with small secluded bays; but a vigorous vegetation covers them to the water's edge, and kauri-trees have grown in places where the precipice is inaccessible on account of its rapid declivity. About three miles from the outer headland, the coast sweeps at a right angle round a cliffy inner headland, thus forming a neck of land about three miles long and as many broad. Round this inner headland, close in-shore, is the best anchorage in the harbour, perfectly sheltered from the N.W. and S.W. winds A swell, which would be liable to set in from the harbour itself, is broken by a long sandbank occupying the centre of the basin.

This place is called Karanga-hawe, and is part of the land claimed by the Manukao New Zealand Company: it has now no inhabitants, as almost the whole of its former possessors—a tribe, belonging to the Nga-te-whatua—have been exterminated: the remains of their village and plantations are still to be seen.

The southern shore of the harbour consists of

undulating and fertile land, which extends from Onehunga towards the Waikato. There is a second channel on that side of the harbour; and a channel for boats extends towards an arm of the Waikato river—the Awaroa—with a very easy portage of two miles and a half.

The south head is a remarkable steep hill of white moveable sand, heaped up by north-westerly gales; the northern head, however, is a black conglomerate of a rugged shape.

Although the harbour of Manukao has a bar at the entrance, there is a deep and free channel three-quarters of a mile broad close to the northern head. Once between the heads, the channel is deep and free from danger.

The tide is full two hours and three-quarters later in Manukao than at Waitemata, and rises to ten feet and a half.

A regular survey of this harbour, and, indeed, of all the harbours on the western coast of the northern island, is still wanting. This deficiency has probably arisen from the coast being a lee-shore, and consequently being more difficult to survey; but it is evident that that very circumstance renders it more important that it should be well surveyed.

Manukao is evidently a place of some importance, from its near neighbourhood to Auckland, and the facility of communication with that town and the river Waikato. The best anchorage, and all the timber, and, moreover, a very good situation for a

town, are to be found on the northern shore; but all the good land is on the southern. To connect the two sides by a road will be difficult and expensive, from the high price of labour. A communication between the different parts of the harbour is always open for boats.[1]

In 1836 no natives resided in Manukao, having all been dispersed by wars some years before. Subsequently the remnant of the original tribe—the Nga-te-whatua—returned: a Waikato tribe, moreover, had a village on the southern shore, where a Church Missionary station was established. Almost all the natives have become converts to Christianity.

On the 2nd of April we left Onehunga, in a canoe, for Kauwitu, a small native village near the southern head of Manukao. The natives detained

[1] Captain William Cornwallis Symonds, of the 96th Foot, and Deputy-Surveyor-General of New Zealand, eldest son of the present Surveyor of the Navy, Sir William Symonds, accompanied me during this excursion into the interior. I lament to say that on the 23rd of November, 1841, he met in this harbour with an untimely death. Whilst occupied in surveying a township at Karanga-hawe, he crossed on an errand of kindness and benevolence to the southern shore: the boat was upset; he was a powerful swimmer, but before he reached the shore a shark drew him down. Captain Symonds was one of the few men who carry with them the respect and love of all who know them. Possessed of a powerful and healthy constitution, which had withstood during seven years the climate of the East Indies, he was expert in all manly exercises, his mind was well stored with a variety of knowledge, and he was a genuine true-hearted Englishman, a kind son and brother, a sincere friend, and an upright, independent, and public-spirited man. He was one of the first who directed attention to New Zealand, and the colony will ever have to deplore his loss.

us two days by demanding an exorbitant sum for the hire of a canoe; indeed the effect of their contact with Europeans has been to render them covetous and extortionate, as among the colonists they see no transactions but what are based upon an exchange of money and labour. But their knowledge of the value of time and money will remain for a long time very imperfect.

The northern shore of Manukao is the last place on the western coast where the Dammara australis, or the kauri, is found. It is true, that a little farther to the southward, in Kawia, in latitude 37° 27′, there are some dozen trees or so, but they are of stunted growth. I have already mentioned that on the eastern coast the range of this pine does not even reach thus far; and this fine tree has therefore a range of less than three degrees of latitude and one degree of longitude; and even within these narrow boundaries it is by no means a common tree. It generally grows in the neighbourhood of the sea-coast, but not in parts exposed to the spray, and on the sides of ravines; it is, in fact, entirely confined to hilly situations. Large districts within the above-mentioned boundaries have formerly been covered with kauri-forest, but are now bare; and its destruction, through waste and negligence, is now going on in other districts. There is no proof that the kauri ever grew to the southward of its present boundaries, although conflagrations of forest have taken place throughout the island. With the de-

struction of the forests many trees and shrubs disappear, especially those which required the full aliment and moisture afforded by the forest: for instance, the arborescent and several other species of ferns, which are only found in conjunction with the kauri.

The kauri is the only cone-bearing pine in New Zealand; all the others bear berries, and are therefore to be classed amongst the very numerous family of the Podocarpi or Taxideæ.

I cannot omit to mention a fact connected with the kauri which seems to throw some light on the formation of amber. The resin which the tree exudates is very hard, and forms large solid masses at the base of the tree. It is generally of a whitish colour, but through age, and as it would seem by exposure to the sea-water, it assumes the gold-yellow colour of amber, becomes transparent, and very closely resembles that substance. It appears to me not improbable that amber is derived from a tree of the same genus as the Dammara australis, as no other resin that I am aware of is so hard, or is acted upon in this remarkable manner by the sea-water.

CHAPTER XXII.

River Waikato—Wainga-roa—Aotea—Kawia.

In Kauwitu, on the south side of the harbour, we fell in with a number of natives from the river Waipa, who were returning from a visit to Waitemata, and who agreed to carry our baggage from Manukao over the portage to the Awaroa, where they had their canoe, and thence to the Waikato. Lieutenant Best accompanied them, but I started for the embouchure of the river Waikato, round the southern head of Manukao, and along the beach. I was anxious not to disappoint Captain William Symonds, who had arranged to accompany me into the interior, and I therefore walked during the night, as it was moonlight, and the air balmy and agreeable, from Manukao. The distance to the Waikato is thirty miles, and the coast, which consists of a broad and hard sandy beach, with soft sandstone cliffs of a moderate height, runs nearly north and south. There is only one spot which is impassable at high water. My path took me near a few poor native huts, and during the night I met a great number of natives quietly returning from a great Missionary

meeting at the heads of the Waikato. The whole district between the sea-coast and the Awaroa (great river), which branches off from the Waikato eight miles from its mouth, is called Tauroa. The soil is very light, and in some places sandy, but the kumera, of which there are many plantations, thrives very well in it. About ten miles from the north head of the river Waikato sand has been carried by the winds a long distance inland, and is mixed with a great quantity of pumicestone, which is often so firmly imbedded in it as to form a pavement. This pumicestone, and occasionally pieces of black obsidian, are brought down the Waikato river from the volcanic group of the Tongarido, which is situated in the centre of the island, and from which the Waikato takes its rise.

I have been told that between the Waikato and Manukao there lived formerly a numerous tribe—the Nga-te-iwi; but in the wars with the Waikato tribes they have disappeared *entirely*, their name being only remembered in disputes about boundaries amongst their successors.

The left shore of the Waikato consists, for about eight miles from the sea, of shifting sand; the right shore is hilly, and at the foot of the hills, near the embouchure of the river, is the station of the Church Missionary Society, Maraenui, established two years ago.

The outlet of the Waikato does not form a bay, but is a narrow channel, where, at low water, only

vessels of about thirty tons can enter. But inside the headlands the Waikato is a stately stream, and when the tide has increased its depth it is navigable even for larger vessels for about a hundred miles, where it is joined by the river Waipa, which is navigable for boats sixty miles farther.

Near the mission-station are several native pas, numerously inhabited, but only during certain seasons, as the natives generally live in their plantations higher up, on the banks of the river. About 2500 were present at a meeting which took place the day after my arrival; the manner in which it was carried on, and the eloquent orations of the chiefs, who, in addressing the assembled multitude, alluded to their altered and improved condition, seemed to prove that they are fast progressing in civilization. Such progress is certainly owing to the efforts of the missionaries. A great feast and war-dance concluded the meeting, after which the natives returned to their homes. The Rev. Mr. Maunsell, who is at the head of this mission, is a very zealous minister, and carries on his work with true Christian disinterestedness. Among those present at this meeting was Lady Franklin, who has done much for the encouragement of science in the southern hemisphere, as her distinguished husband, Sir John Franklin, the present Governor of Van Diemen's Land, has done for the same cause, all over the world, by his important discoveries within the arctic circle, and who was at this time

engaged in the long and arduous task of visiting many parts of New Zealand.

A party of about seventy natives, who were returning to their homes at Aotea, having offered us their services, we started in the morning of the 6th, and, marching in a long file, followed a path on the hills of the coast towards Waingaroa. The hills are partly wooded, partly covered with fern and flax. In the woods the hinau was very plentiful. This tree (Elæocarpus hinau) belongs to the family of the Elæocarpeæ, and attains a moderate size. The natives obtain from it the very durable and jet-black dye which they use for dyeing their garments. A greenish mud, which is obtained from the rivers, and probably contains muriate of iron, is macerated for a short time with the bark of the tree and the flax, and this is the whole of the process. I have no doubt that this bark will become an important article of export, as the tree is very common in many parts of the island. The fruit forms the favourite food of the large parrot; and even the natives do not despise it. They separate the farinaceous shell from the hard and oily kernel by friction in a wooden trough, and form it into cakes.

The hills are steep on both sides, and run parallel to the coast, to which, after a short walk, we descended. It consists partly of cliffs and partly of steep slopes; and the formation is a solid white sandstone, composed of comminuted shells and grains of

quartz, and often rising to a height of 120 feet. The rock has broken down in some places, where prosilient cliffs interrupt the generally straight lines of the sandy coast. Everywhere creeks and rivulets fall into the sea.

On the 7th our way led us up and down the coast hills. These consist of a yellow argillaceous slate; and as I descended to the sea-coast I observed in many places laminar basalt, the plates of which were often of a rhomboidal shape; and also compact basaltic rock. Buttresses of the main chain of the hills run off towards the sea-coast, forming narrow valleys. In the widest of these we encamped. The neighbouring hills were moderately high, of undulating outlines, and wooded towards their crests, and the soil of the valleys appeared to be very fertile. It rained violently in the night and during the morning of the 8th, but we started in the afternoon, as the weather had improved and the atmosphere was clear and refreshing. The sandstone cliffs drew close to the sea, and we had to follow a dangerous path on the sides of the cliffs, scarcely practicable except for goats. We passed a small native pa, in which were a few inhabitants; they were the first natives we had seen since leaving the Waikato. We encamped in their neighbourhood: the hilly coastland had now assumed the character of plateaux and basins; and although they were covered with vegetation, I could discover that they owed their origin to trap formation. The sandy downs of

the coast shelter these places; the soil is a light fertile mould. The appearance of the land continued unchanged until we reached the harbour of Waingaroa. Before we came there we met several families of natives, who seem to be under the authority of a very intelligent and civil old patriarch. All the members of his family were remarkably well-looking. They carried on a lively and joyful conversation with us till late in the night, and I felt truly sorry in the morning when we parted from them.

On starting on the 10th we had only a few miles to proceed before reaching Waingaroa. Our road was covered with the Veronica speciosa, which is a true child of autumn, and grows to the size of a moderate shrub. On the beach the sandstone formation was again interrupted by irregular dykes of whinstone. We pitched our tent on the northern shore of Waingaroa Harbour. This consists of very picturesque limestone cliffs, corroded by the action of the water, and half concealed by the over-hanging verdure. The cliffs are from sixty to seventy feet high. The limestone is more or less crystalline, and coarse grained; and contains fossils, belonging to the genera Terebratula, Venus, Ostrea, Pecten, Echinus, and Asterias. At the head of the harbour there is a large district consisting of a bluish clay, without, however, any organic remains. The southern shore is formed mostly of a soft ferruginous sandstone. At an arm of the harbour, which here

extends for some distance inland, basaltic rock is seen, containing small grains of olivin. Woody Head, or Karaoe, which forms the southern headland of Waingaroa Harbour, appears to consist entirely of this formation. I tried to ascend the craggy and rocky summit of this group of hills, the base of which is thickly covered with wood or high fern, and which rises about 900 feet above the level of the sea; but after a fatiguing march I abandoned the attempt, as I found it impossible to penetrate through the brushwood without a much greater expenditure of time than I had anticipated.

In Waingaroa there are about 1200 natives, belonging to the Waikato tribe. They are mostly Christians, and on the southern shore is a missionary establishment belong to the Wesleyan Society. The natives assembled in the morning of the 11th, and Captain Symonds expounded to them the new system of government. They were highly pleased to be in future subject to the English law, the leading principles of which, as affecting their own position, they appeared perfectly to understand.

The harbour of Waingaroa is a long inlet, with a bar at the entrance; it has, however, a channel of twelve feet at low water, and admits smaller craft, which find shelter in several bays on the northern shore. Off the southern and northern head of the harbour are spits of sand, and the navigable channel is equidistant from both heads. The tide rises ten feet, and at full and change it is high water at ten

o'clock. Several small vessels from Sydney, of about sixty tons burden, visit this harbour regularly for the purpose of trading in salt pork and flax, which are obtained from a few Europeans who have settled here.

Two rivers empty themselves into the harbour, of which the smaller one comes from the northward, and is called Waingaroa. The larger one comes from the eastward, and is called Wai-te-Tuna: it has a channel for boats; and from the point at which, on account of falls, it becomes impassable for boats or canoes, an easy walk of four hours leads to the banks of the river Waipa.

The coast-hills between Waikato and Waingaroa, which I have described in the course of my journey, separate the waters of the Waipa and those which rise in the hills and run to the west coast. These hills have an easy slope, both towards the plains of the Waipa and towards the sea-coast. They are lowest at the Wai-te-Tuna, where the common native road is, and here a communication with the interior is most easily established. Thus the harbour of Waingaroa offers many advantages for a settlement, especially as the land in its immediate vicinity is most excellent, both forest and agricultural. Nevertheless the purchases of the Europeans have not been so extensive here as in other parts of the island.

The missionaries have a bridle-road, cut by the natives, for about six miles towards the harbour of

Aotea; this we followed on the 11th. It leads along the wooded crest of the hills. The forest contains many tanekaha or parsley-leaved pines (Phyllocladus trichomanoides). The stem of this tree is very straight, and much like that of the kauri, and its wood is still more durable; but I have never seen it growing to the same size, from a foot and a half to two feet being its usual diameter. The middle island, especially Dusky Bay, has more tanekaha, forests than the northern, but this tree has never been much sought after.

On the 12th we reached Aotea. It is a long and shallow estuary, with a bar at its mouth, but has several times been entered by a schooner of sixteen tons burden. In Aotea the limestone again appears on the sides of the hills which bound the harbour. On the northern shore is a Wesleyan mission-station, and the native population amounts to 1200. They assembled at the summons of the missionary, who exhorted them concerning some cases of murder which had lately occurred, resulting from a belief in witchcraft. In one case a dying chief had accused a poor old man of having caused his illness by makuta, or sorcery. A young relative took upon himself to revenge the supposed crime, and killed the man. The majority of the natives felt not only the culpability, but also the absurdity, of such a procedure, and were of opinion that it should in future be discontinued.

We crossed to the southern shore in the boat

belonging to the mission. I traced there some thick beds of lignite under cliffs of a soft ferruginous sandstone.

From Aotea a two hours' walk brought us to Kawia. Another good road leads round by the beach, which is here bounded by hills of drift-sand. At a little distance behind them the land is flat and good. We passed many flourishing native plantations stocked with the common vegetables.

The harbour of Kawia is one of the most important on the western coast of the northern island. It has a clear entrance about a mile and a quarter broad, and with two fathoms at dead low-water spring-tides. The tide rises twelve feet, and at full and change it is high water at eight o'clock. The best anchorage is along the northern shore, where the depth varies from five to eight fathoms. The harbour forms an irregular basin, and is joined by two rivers, which descend from the coast range, and admit boats; the one to the north is the Awaroa, which receives a tributary, the Kauri river, so named from a few kauri-trees which grow here, and are strictly "tapu:" from the right bank of the river the road leads over the hills into the plains of the Waipa; the river to the south is the Wai Arekeke, and here another road leads into the Waipa district, more circuitous, but less hilly.

The principal geological feature of the estuary of Kawia is an extensive calcareous formation, which can be examined on the left shore of the Awaroa

and on the south side of the harbour. The limestone is of the same description as that in Waingaroa, and contains the same fossils, with the addition of great numbers of a large Ostrea, often a foot in length; next to these the Terebratulæ are the most numerous, and in an excellent state of preservation. The nature of the fossils would seem to place this formation in the tertiary series; they are, however, such as are found in formations of all ages, and it is difficult to form at present a decided opinion on this point. The calcareous cliffs are corroded in various ways; chasms have been formed by the dripping water, and stalactites hang from their sides and roofs. In one of these deep chasms is the old burying-place of the tribe of Rauparaha, the Nga-te-toa, a division of the great Nga-te-awa tribe. But these places, to which such sanctity is usually attached by the New Zealanders, have not met with more respect from the Waikato than has the tribe of the Nga-te-toa itself, who about twenty-five years ago were driven from this place to the south, when Rauparaha settled at Entry Island. On the northern shore are still to be seen the extensive remains of his fortifications, trenches, and walls, and I thought I could distinguish in their construction that sagacity for which Rauparaha has been always famous.

The principal settlement of the Waikato, who are now in possession of this part of the island, is near the Wesleyan mission-station on the south shore.

They are about 1500 in number, and of late most of them have become Christians. There are about forty Europeans settled on the northern shore, who have lived here for several years past: but the mixed members of this little community do not keep up the best understanding amongst themselves; and it would be well to establish soon some authority at this place, as, from its being almost the best harbour on the western coast, and the only one of consequence between Manukao and Port Nicholson, from the quality of the surrounding country, as well as from the immediate neighbourhood of the extensive and fertile Waipa plains, a town might be established here with every prospect of immediate success. The greater part of the land in the vicinity of Kawia is claimed by Europeans.

We settled with our numerous followers to their entire satisfaction, a shirt or a gown being the payment to each. Amongst them was a chief, Te Kiwi, with whom I was particularly pleased. He had been formerly a renowned warrior in the wars of his tribe with the Nga-te-awa. Although fully tattooed, his countenance displayed much mildness, and his behaviour to us was conciliating, polite, and attentive. In his exhortations to the rest of our companions he often used the powerful weapons of sarcasm and irony, which had the more weight as they were delivered without arrogance and in perfect good humour. He took great care of his daughter, a fine little girl, who had volunteered to

carry Mr. Best's knapsack. Te Kiwi had become a convert to Christianity, and had a kind and feeling heart, although in his younger days a renowned cannibal. His costume was most peculiar: he was dressed in a shabby black dress-coat and trousers, the offcast of a missionary's clerical wardrobe, with an extremely dilapidated gossamer hat on his head.

On the 20th we went in a canoe to Oparau, a small river a little to the northward of the Awaroa. Its banks are of moderate height: the soil is a good loamy earth, and covered with a luxuriant vegetation of fern and flax. We halted in a native potato-plantation, not far from the harbour, as our companions, amongst whom was Te Waro, a chief from the river Waipa, who had offered to accompany us into the interior, had not yet all arrived.

The next day our road led us up the hills, which ascend gently from the sea. We kept along the ridges, and had to pass several ravines and narrow valleys. The formation of the hills, as was shown by the fragments which appeared on the surface, is volcanic: they consisted of a solid basaltic matrix, with numerous pentagonal columns of augite. Many parts of these hills are covered only with fern; others, especially in the ravines, are still clothed with forest, which seems to have formerly covered the whole. We stopped at a very ancient rata-tree: its stem was fifty-four feet round, and, having been hollowed out by fire, served for a convenient shelter to the natives. It was "tapu," that is, no one was allowed

to cut down any portion of it, the whole having been set apart for general use. We ourselves pitched our tent, but it rained so violently during this and the following day, that everything got wet. In the night flashes of lightning threatened every moment to strike the trees around us, and the thunder resounded majestically from the surrounding hills. During the night we heard the shrill monotonous voice of the weka, or Rallus australis. This bird, which has become very scarce, on account of its being destroyed by the wild dogs and cats, lives in the darkest recesses of the forest, where the soil has become saturated with water, and muddy, and where it finds the insects which, together with seeds, serve for its food. I kept one for some time, feeding it on potatoes and cockroaches, of which insect it was very fond. The natives catch it in snares, or decoy it by imitating its voice.

On the 23rd we continued to ascend the hilly and wooded ridge which separates the Waipa from the sea-coast. From an open spot I had a view of Kawia and Aotea. Albatross Point bore S. 55° W.; the south head of Kawia S. 50° W.; Maunga-Tautari, a volcanic ridge in the interior, N. 65° E. Higher up the hills become very rocky and steep: the formation of basaltic and augitic rock continues. In some places the hills are only covered with scanty and stunted trees. When we reached the top an extensive view opened before us: the broad and open valley of the Waipa stretched out towards the north-

east, and was bounded to the east by distant hills. To the south-west the eye reached to the hilly chain of Rangitoto, near Mokau, on the western coast, which bore S. 20° W. In the valley of the Waipa rose an isolated conical hill, Maunga-Kaua, whilst here and there a small part of the Waipa river itself was visible. I had a good view of the country inland of Waingaroa and Aotea Harbours; and I observed that everywhere the coast-hills descended gradually towards the interior, and that all these hills were covered with forest. Only some small spots of the valley of the Waipa were wooded. On these we observed burnt and bleak stems of old trees, the only sign we could perceive of the intrusion of man upon the dominion of Nature. The undisturbed silence in which the whole was wrapped imparted an agreeable repose to the landscape. Pirongia, as the hill on which we stood is called, seems to be the highest point of the coast-chain: it rises to the height of 2428 feet, measured themometrically, the point of boiling-water being 207·5°, the temperature of the air 51°, and the mean between that of the sea-shore being taken as 55° Fahrenheit.

We descended into the valley of the Waipa, following the course of one of its tributaries, which rolled rapidly over a bed of rounded and smooth boulders. At the foot of the hill we halted at a small settlement of natives. The news of our approach having preceded us, they placed before us, at

the moment of our arrival, long rows of baskets filled with articles of food, such as green calabashes, kumeras, pumpkins, water-melons, and dried fish. This is an old native custom in regard to strangers, and is rapidly giving way to European modes of hospitality.

CHAPTER XXIII.

River Waipa—Mission-Station of Otawao.

In the evening we arrived at the banks of the Waipa, and were welcomed in the house of an Englishman, a trader and old settler. The river was swollen by the late rains, and had risen about eight feet above its usual level. The banks being elevated, this made no difference in its breadth, which was here about fifty yards. Its average depth was now from one and a half to two fathoms; but even in dry seasons a boat can go up ten or twelve miles higher than this place. The valley itself has little slope, and the average velocity of the river cannot be sufficient to hinder boats from going against the stream: its velocity per second I found to be nearly two feet and a half. The banks consisted of a stiff loamy earth, with layers of sand, but without any fragments of rocks. All the surrounding country is flat, and of the most promising description for the growth of grain. Our English host had a quantity of tobacco hung up to dry, which he had grown here: it was of an excellent quality, and the rich soil and humid climate seem to be well adapted for the cultivation of this plant.

On the 24th we crossed the Waipa in a canoe, and reached the Church missionary station of Otawao, which is about nine miles distant from our resting-place of the night before. Here, for the first time, we had a view of the snowy head of the Ruapahu, which is about 150 miles distant.

The mission-station of Otawao was established about a year ago, and has already been very useful. It is situated on the banks of a small tributary of the Waipa: opposite to it, on an eminence, the Christian natives have constructed their pa, as at the first introduction of Christianity a sort of separation always takes place between the Christian converts and the Heathens, without, however, materially affecting the general harmony of the tribe. In those cases in which the majority of the tribe or of the inhabitants of a village have become converts to Christianity, the remainder, finding themselves deserted, and unable to assemble followers for war-like enterprises, frequently affect to adopt the new doctrine. At this place, Muketu, the pa of Te Puata, the principal chief and warrior, which stood at a little distance on rising ground, was almost uninhabited, although the native houses in it were by far the best I had yet seen in New Zealand, and the carvings on them were executed with much ingenuity. Te Puata is an old man, and was formerly the principal chief of the whole Waikato tribe; his authority is now transferred to his son, Te-Wero-Wero, who resides in Manukao. But the veteran

is still bent upon war, and told me that he would fight till he was dead. He bears great hatred to the tribe of Roturua, with which he has quarrels of an old date to settle.

In this neighbourhood there are several well-peopled pas, amongst which was that of our companion and guide Te Waro. We visited three of them, and in all I found many highly interesting carvings on the houses and fences. In one a papa tupapakau, or carved mausoleum, erected for Te-Wero-Wero's daughter, was an extraordinary piece of native workmanship.

Not far distant from Te-Wero's pa rises a hilly range, Maunga-Tautari, separating the valley of the Waipa from another valley more to the eastward, in which three rivers flow, the Waikato, the Piako, and the Waiho, or the river Thames. The Waikato winds around the northern slope of this range, and is joined, about 100 miles above its embouchure, by the Waipa. The valley of the Waipa, which is therefore formed by Maunga-Tautari and a range of hills near the western coast, must be regarded as partly original volcanic table-land, and partly alluvial soil; the surface of the latter is enriched by the forest which in ancient times covered it. The groves, which are still standing in many places, especially where swamps are found in the depressions of the land, consist mostly of kahikatea: this pine, the swamp-pine (Dacrydium excelsum), generally occupies low and

swampy ground. It grows rapidly, and attains a large size, but its wood is less durable than that of any other pine. Nevertheless, many small coasting-vessels have been built of it; and it is well adapted for the inside wood-work of houses: but if exposed to the outer air and to the humidity of the climate, it requires a good paint to preserve it from rotting. The kahikatea bears very numerous seeds in bunches: the fruit is double; the upper part, which is the seed, is blue, and of an aromatic taste; the lower part is a sort of fleshy receptacle, not however a mere hollow cup-shaped cover, but entirely distinct from the seed: it is of a crimson colour, and is slightly acidulous: both parts are of the size of pepper-corns. According to the natives, these berries, which they call koroi, ripen only every third year. They are eaten with avidity by the birds, and are considered a great delicacy by the natives, who also press out the juice and drink it unfermented.

About ten Europeans are settled in the neighbourhood of Otawao; and in numerous dispersed and fortified villages live several distinct tribes, all belonging to the Waikato nation. On Sunday I witnessed the assemblage and catechizing of the Christian natives who live opposite the mission-station. An old blind native, Haramona, or Solomon, as he has been christened, acted as catechist to the men, feeling his way from one to the other with his staff, and evincing excellent powers of

memory; his class sat around him in a circle. The females were interrogated by a very intelligent-looking young woman; and I was much surprised and gratified to see what progress they had made in so short a time. Nearly all of them were proficients in reading and writing, which they had been taught by mutual instruction. The chiefs, a few only of whom had become converts, sat at some distance, and contemplated the whole in silence. Slaves and the lower classes are always the first among the New Zealanders to embrace Christianity, the doctrines of which are so effectual in consoling the oppressed and the unhappy.

We started from Otawao in the afternoon of the 28th, having obtained the guidance and safeguard of a chief named Titipa, who, with his whole family and about eighteen of his followers, was proceeding to pay a visit to their friends and relations at Taupo. We halted at a plantation belonging to our guide, near a kahikatea-forest, where a pig was killed for our entertainment, and where, on account of heavy rains, we were obliged to stay the following day. The time passed, however, quickly, as I obtained from the natives much information about themselves and their tribe. The country around was too monotonous to offer much inducement to explore it, even had the weather rendered my doing so possible.

On the 30th our direction was easterly, leaving the river Waipa, the source of which lay towards

the west, among the mountains of Rangitoto. This range of hills forms a continuation of the western coast-hills, and connects them with the group of the Ruapahu. On the western slope of these mountains is the source of the Mokau river, which falls into the sea about sixty miles to the northward of Cape Egmont. The general level of the valley of the Waipa is interrupted by a few isolated pyramidical hills of a volcanic origin, of which arms, consisting of tufa and pumicestone, run off in all directions, often presenting cliffy escarpments on the sides. We passed two old pas of the Nga-te-raukaua, a tribe which has now deserted the interior in consequence of their wars with the Waikato. They live at Otaki, in Cook's Straits, in constant hostility with the other tribes there, especially the Nga-te-awa. One of these pas was very picturesquely situated: a streamlet wound its way around the cliffy pumiceous sides of a hill, which was covered with verdure, and on which the old fortifications could still be traced; farther up we passed a conical hill, the base of which consisted of a hard basaltic rock overlaid by pumice, and the whole covered with fern. Approaching the base of the wooded range of Maunga-Tautari, which was to our left, we came to a small native settlement, the inhabitants of which were mostly dependants of our guide Titipa, who claims the whole of this district by right of conquest. On our road this day Titipa pointed out a human figure rudely

carved in pumicestone, a monument to the memory of the principal chief of the Nga-te-raukaua, who fell here in a fight, in which Titipa was the principal actor. The range of Maunga-Tautari slopes here to the southward, terminating in a pyramidical summit, which we in vain tried to ascend, the path which formerly led up it having become entirely grown over with brushwood. The land to the southward of this range is generally pumice-land, and is covered with a light black or reddish earth, in many places very favourable to vegetable life.

From this point our road lay through a singularly broken country. Moderately elevated hillocks presented here and there cliffs consisting of tufa or of lapilli of pumicestone loosely cemented together by volcanic ashes. The cliffs were often lined with a shrub (Metrosideros hypericifolia), with small myrtle-like leaves, which fixed its tendrils firmly to the rock, in the same manner as our ivy does. In some places the surface of the country formed regular basins, and craggy castle-like formations of the rock crowned the hills. In the indentations and ravines appeared some shrubs and trees; but the scanty vegetation of fern and coarse wiry grass, with here and there a solitary dragon-tree, gave the region a dreary aspect. On the whole, the pumicestone has not undergone sufficient decay to allow the growth of anything except scanty grass. Most of the valley had a north to south direction; and there is no want of water, as in every valley

flows a little streamlet. We pitched our tent in one of these valleys; and the natives talked of establishing a plantation here, in order to be provided with food on their road to Taupo. In the evening we were joined by some inhabitants of Taupo, who were returning from a visit to Otawao.

The temperature of the air showed the difference between the climate of the coast and the interior. Although rising at noon to about 70°, it fell in the evening to 45°, and in the morning we found ice about half an inch thick covering the ponds and swamps, and a hoar-frost whitened the plains. To the northward a thick mist indicated the bed of the Waikato, and again, at a farther distance, that of the river Thames. The wind during these days was from the south-east; towards evening it subsided into a perfect calm, and the landscape assumed that clear autumnal aspect which is so pleasing in Europe.

On the 4th of May we proceeded over a low undulating fern country, and entered a wood, in which the principal trees were matai and totara. The former (Dacrydium matai) bears a dark-blue berry, of the size and shape of that of the whitethorn, the pulpy shell of which has a sweet and aromatic taste. The tree is a pine of moderate dimensions, about seventy feet high at the point where the branches begin; the wood is durable, though light; it is red, and looks well in furniture. The totara (Podocarpus totara) is the most durable of the New

Zealand pines. The tree attains great thickness, and is invaluable for ship-building.

Of the different pines in New Zealand, the rimu, the kahikatea, the totara, and two species of tanekaha, bear a double berry, that is to say, the seed is separated from the pulpous and fleshy receptacle, which in the two latter approaches to the shape of a cup, and surrounds a part of the seed; in the two former, however, the pulpous part is divided from the seed, which rests upon it. The miro and matai bear a drupe, which is crimson-coloured in the former, with a blue dust, and in the latter dark-blue, or nearly black. I have not seen the fructification of the kawaka, or Dacrydium plumosum, nor that of the new pine which I discovered on Mount Egmont. The kauri is the only pine bearing a cone.

The forest was interwoven with creepers, and the road very tedious. We encamped about a mile from the left shore of the river Waikato. On ascending the hill which separated us from it, a novel scene opened before me. Looking to the eastward the land appeared as if the waves of the sea had suddenly become petrified: on the declivities of the low undulations the white and naked clay appeared; in other parts the hillocks were covered with a stunted fern and a coarse discoloured grass; and the brown tint which these imparted to the whole gave it a barren and desolate aspect. The river was not visible from the hill; and in order to see it I

was obliged to descend into the deep channel which it had dug out of the soft tufaceous and leucitic lava. The banks which form its channel during freshes are about 150 yards distant from each other, but now the river was confined between banks of six feet high, and within much narrower limits, not being more than fifty yards broad. Its course was from S. by E. to N. by W. In some parts it was deep, and at others it formed rapids; the water was bluish and clear, and marked the near neighbourhood of the snows and glaciers of the Ruapahu, in which it takes its rise.

We had a distant view of Horo Horo, a mountain in which the river Thames has its source; it bore S. 80° E. We also saw Titiraupena, a pyramidical mountain, with naked black rocks heaped upon its pointed summit, and bearing S. 20° E.

On the 5th and 6th we passed through a country in the highest degree curious to the geologist. It was broken into a number of hillocks, most irregularly dispersed over the perfectly level surface of the original table-land. On the hillocks themselves most regular terraces were visible in some places, and it was plain that they could have only been produced by a gradual fall of the waters. All these hillocks consisted of tufa, or the before-mentioned lapilli of pumicestone, cemented together. Everywhere flowed little streamlets, and we passed two deep creeks, the Maunga Wio and the Waipapa, tributaries of the river Waikato. The Wai-

papa presented a very wild scene. The river, here about forty yards broad, lost itself in successive falls in a deep fissure which it had corroded out of the soft rock. The country now became more desert; as the level land, consisting of the same materials as the hills, was as yet but little decomposed, and nourished only a stunted vegetation of grass and fern, and a plant of the family of the Compositæ.

Near the river-courses the soil was better, and bore a good many shrubs. Of animal life nothing was visible, with the exception of the Cigale Zelandica, which filled the air with its chirping note, and a brown ground-lark very common in New Zealand.[1] We passed a number of deep holes in the ground, apparently produced by the water infiltrating into the porous substance, and carrying off a quantity of it by forming a subterraneous rivulet. Here and there I found pieces of obsidian, and everything proved that we were fast approaching a great centre of volcanic action. We passed between two isolated and very remarkable hills: that to our left was called Titiraupena, and its top was shaped like a lofty cupola: that to our right was Wakakahu; it was rugged and broken. We were met here by many natives, who had already heard of our approach. We hailed their arrival with even greater delight than they did ours, as for the last two days we had been living on short rations: this they had foreseen, and accordingly brought us seve-

[1] Alauda Novæ Zelandiæ, Gmel.

ral baskets full of food. In the evening we reached their pa, which was called Ahirara. It was situated on the border of a splendid forest of totara, rimu, and matai. The country here became more hilly, the hills belonging to a range which rose into precipitous and fantastic crests, and which may be said to occupy the left shore of the Waikato after that river issues from the lake of Taupo. The pa was surrounded with high and rudely carved fences. It appears that the feeling of security which in the places near the coast has begun to exercise its influence has not yet extended so far inland. The natives have some Christian catechists amongst them, and are occasionally visited by the missionaries from Tauranga and Roturua. Their number amounts to about 400.

Only three miles distant from this place is another pa, the road to it leading through the hilly forest. This pa stood on a pyramidical hill, which was naturally fortified by deep perpendicular chasms. It contained only a few houses, and had lately been established by a chief who was desirous of being at the head of a tribe. Here we stopped on the 8th, and were received with much kindness by the inmates, as they were relations of our guide: however, a slight disagreement arose on the following day, which was Sunday. They refused us food, saying they had become missionaries of late, and had been told it was the greatest sin to kill a pig or to cook on Sunday. That we demanded it on that day was

not our fault, as we had solicited it the day before. Titipa started off to a neighbouring Heathen pa, although the rain fell in torrents, and came back in the afternoon with a pig.

About three miles from this place I saw masses of white vapours rising in jets, and the natives told us that they were caused by the hot-springs (puhia). The way to them leads through a valley, on the sides of which I again observed the curious terraced appearance which I have lately mentioned. The springs, three large and many small ones, were situated at the base of a range of low hills, of a conical shape, and consisting of scoriæ. They ranged in a linear direction from north-west to south-east. The larger ones are formed in the shape of a funnel, with a diameter of about twenty-four feet. The water, which was not easily approached, had a milk-white, clayey appearance, and was continually in a state of ebullition, or thrown up in jets: it had a slightly acidulous taste. Steam issued from a number of crevices at the sides of the funnel; the gas was sulphurous, and efflorescences of sulphur and alum lined the rock; there were also some traces of sulphate of iron. The temperature of this milky and muddy mass was above the boiling-point of water, as the mercury rose to 216° Fahr., the highest gradation on the scale of my thermometer. The margin of the funnel was much altered in its chemical composition, and formed a yellowish or reddish clay. The Leptospermum scoparium

clothes the margin of the springs; and although continually exposed to the rising steam, the verdure is little altered.

I started in the morning of the 10th for some other hot-springs which I had descried at a distance. They are about a mile to the southward of those above described, but on the opposite slope of the hills, and are arranged in the same direction of the compass, that is, from north-west to south-east. They are situated in a ravine, bounded on the other side by a range of steep and precipitous cliffs. I was alone; but met three natives, who were going back to Taupo, and who offered to be my guides. The first springs I came to were four in number, and close together. They issued through gravel, and were two feet and a half deep, and about two feet in diameter. The thermometer, when its bulb was brought to the bottom of the spring, rose to the boiling-point. The water was nearly clear, and had an agreeable acidulous taste and a slight smell of hydrosulphurous gas; a thin crust of alum and sulphur was deposited at the brink of the spring. The taste of the water, however, was not quite the same in all the springs. At a little distance were boiling mud-ponds, or stufas; and still farther, steam and sand were thrown up, and constituted a complete volcanic range of miniature hills. The mud and sand had formed regular truncated cones, of which one was about fifteen feet at the base, and ten feet high; inside this cone was a funnel, about two

feet in diameter, and filled with clear hot water, in the centre of which the bubbles rose continually. In one large pond there were eight such cones. In seeing these cones one would almost be inclined to think that those regular craters which are found close together in Waitemata and Waimate have been formed in the same way—namely, as immense stufas, which have been elongated, and have subsided in that direction in which the water overflowed. The external appearance of the small and large craters is perfectly alike, although the latter are on an infinitely larger scale.

The most stupendous of these boiling ponds was about a quarter of a mile farther on. Here a steep cliff, about sixty feet high, white, oxidized, corroded, and undermined, presented itself. At its base was a large pond, continually boiling, with a white foam; throwing out jets of fluid eight to ten feet high, with great violence and noise. The temperature of this pond was likewise above the point of boiling water. The pond, round which was deposited a white clay, was apparently very deep; but I could not sound it, being unable to find amongst the light volcanic materials which covered around it a stone of sufficient weight to attach to my line. I returned to the pa full of the impressive scene I had just beheld. My party had started; but from a neighbouring potato-field I soon procured a guide, and proceeded towards our evening resting-place. The natives here chiefly cultivate the forest-land on

the sides of the hills, which yields them the best crops.

If I wished to describe the country through which we passed, I could not do so better than by saying that it resembled land over which a flood had swept, leaving it torn, or in many places ridged with terraces formed by slow subsidence, but altogether devastated and dreary. Shallow ravines had been formed here and there, often turning at sharp angles where the water had found resistance; the declivities of these ravines were covered with gravel. Sometimes a higher cliff appeared, consisting of a tufaceous conglomerate; the upper soil was pumice-stone gravel, and was covered with stunted fern and lichens; here and there was a moor-ground with rushes; there were also swamps and numerous rivulets, near which the vegetation had a fresher aspect. After sunset I arrived at a range of hills covered with wood, and presenting sometimes a cliffy, sometimes a sloping aspect to the eastward. Here was a small pa, the ascent to which was steep and rocky, and which had been chosen by a tribe of the Taupo people as a place of security against the inroads of the Nga-te-Kahohunu from the east coast. It is called Tutaka-moana. In the evening our killing a pig and cooking it on a Sunday was the subject of a lively controversy between our companions and the natives of the pa. Titipa, although not yet a Christian, was well read in his Bible, and proved to them that there was no commandment to refuse a hungry wanderer food on a Sunday.

RUA PAHU AND TONGARIRO

CHAPTER XXIV.

Lake Taupo and Tongariro.

We started on the 11th of May for Taupo lake, which was only at a short distance. The road lay in the valley, or alternately ascended or descended the hills. From the last of these, a ridge with a steep ascent, the great Lake Taupo burst on our view, and was greeted by us all with delight. Across the lake was the Tongariro bearing S. 20° E., and to the north-west and north were the mountains Titiraupena and Wakakahu.

The rocks of which these hills consist is a leucitic lava of greater firmness than that we had lately passed, and here and there I found fragments of porphyry. Very near the lake a sand appears in the section of a small landslip about fifty feet above the present level of the lake, consisting entirely of small crystals of glassy felspar; and the same sort of sand is at present found at the borders of the lake itself. This proves that the level of the lake was once much higher than it now is, and that it has broken through the barrier of cliffs which surrounded it, thus, perhaps, overflowing the lower country and giving rise to the formation of the

land which I have endeavoured to describe, since the mass of water which thus escaped must have been very considerable.

On the margin of the lake was a small beach, the sands of which were grains of leucit. It was bounded on both sides by prosilient promontories clothed with shrubs. The Edwardsia and the karaka-tree were again prevailing, and a very beautiful shrub, a Dracophyllum with rose-coloured flowers, was in full blossom. On the western promontory were some houses; but most of the inhabitants had departed for a war excursion to Wanganui and Cook's Straits, and the rest of the tribe lived at a different part of the lake. Being, however, apprised of our arrival, some men, with women and children, made their appearance in the evening, bringing plenty of provisions in their canoes, and the most friendly understanding was soon established. With European commodities they were as well provided as the natives on the coast; these they generally obtain from Cook's Straits, since Wanganui, by the establishment of a small colony of the New Zealand Company, can now provide them abundantly.

I will now cast a retrospective glance over the country which I traversed, from the mouth of the Waikato to the borders of the Taupo lake. Of this the valley of the Waipa forms the most important part. This valley is bounded to the westward by a range of coast-hills, to the eastward by the range of Maunga-Tautari. It has an average breadth of about

thirty miles; is even and flat in its lower part, especially up to the point at which the river Waipa joins the Waikato: higher up the country is broken and undulating, covered with a vegetation of fern and coarse grass, alternating with groves of the kahikatea-pine. The lower part rivals in fertility the best districts in the island, the valley being a vocanic table-land with much alluvium. It has the advantage of being sheltered from the gales which are so prevalent on the coasts of New Zealand, and would therefore be particularly adapted for grain, tobacco, safflower, and hops. It must, in fact, be regarded as the most sheltered region in the whole country; and if the vine and mulberry will grow anywhere in New Zealand, it must be here. Higher up the valley, and between the Rangitoto mountains and Taupo, the country will be available, when the increasing population creates a demand for land. Even where the country is pumiceous, it is covered with a coarse grass, which I feel convinced would be eaten by cattle, and better sorts of grasses would soon, by a little exertion, be spread over the surface. The soil near the watercourses, and in the little valleys, is excellent, and would produce everything needed for home consumption.

The peculiar recommendation of the Waipa valley is its easy communication with the sea, as the river is navigable for sixty miles above its junction with the Waikato. Of the harbour on the west coast Waingaroa is perhaps the easiest of access from this

valley, as there the coast-hills are lowest; but Kawia has a finer harbour, and Nature has pointed out that place as a most advantageous site for a township. It must, moreover, not be forgotten that the valley of the Waipa has an almost uninterrupted water-communication with Waitemata or Auckland.

The natives who inhabit the Waipa belong to the tribe of the Waikato, and live in small but well-peopled villages: they are, perhaps, the finest set of people in New Zealand, are familiarized with Europeans, and very anxious to receive them into their country. There is a great demand among them for European commodities, which will create a lively intercourse between both races.

A great part of this country is not yet sold, but the chiefs have made numerous applications to Her Majesty's Government on the subject.

The Waikato river, although a considerable and deep stream after it issues from Lake Taupo, and towards its outlet after its junction with the Waipa, is of less consequence than the Waipa, as in the middle part of its course the navigation with canoes or boats, if not actually interrupted, is yet rendered difficult by rapids, and the country through which it flows is bad above Maunga-Tautari, being composed of a pumiceous or tufaceous gravel. To convert the river throughout its course into a canal, if such a measure should at any future time be required, would not, I conceive, be very difficult, as it has steep banks and a sufficient supply of water.

By a work of this nature a complete water-communication would be opened throughout the island by means of the Taupo Lake and the Wanganui and Manawatu rivers, which take their rise in the same mountain as the Waikato, and are navigated by the natives nearly from their source down to their embouchure in Cook's Straits.

Lake Taupo appears to be 1337 feet above the level of the sea, if we may trust a measurement with Newman's thermometer, which gave the thermal point at 209·5°, at a temperature of 65° Fahrenheit.

The natives are afraid of trusting themselves on the lake whenever there is the slightest indication of bad weather. It being a large basin, and on most sides surrounded by cliffs, which are divided by gulleys, the waves are frequently very high, and prove dangerous to the canoes, which have here no gunwhales, and are called tiwai. For two days the natives dissuaded us from venturing upon it, although my companions were very impatient, and pressed them hard. "You do not know this lake," they said; "it is worse than the sea."

Knowing well from experience in Switzerland the nature of inland lakes, I readily yielded to this advice, being aware, moreover, of the futility of pressing the natives in such matters. I have always indeed made a point in New Zealand of keeping my patience and composure in all discussions with the natives, and have in consequence fared well. I recommend the same system to all those who have

occasion to travel amongst savages, who, by the bye, are in this respect often our superiors.

At the end of two days we started in a canoe, which was very large, but was quite full of men, women, children, dogs, and pigs. We now perceived that the natives had been right, as the waves of the lake still rose high even from the moderate winds which we had had the last two days, and the canoe was very deep in the water. If we had been upset we should not have had much chance of saving ourselves by swimming, as the western shore consists of high cliffs of a trachytic rock, which are washed by the deep water. We landed, and encamped for the night at a small bay where there is a native settlement. Behind this bay the hills are very steep, and about 1600 feet high, and rise to a very narrow crest at the top: they form an amphitheatre round the bay. The side toward the lake was formerly wooded, and is so still in many patches, although it is so steep that I found it difficult to ascend; yet the natives, nevertheless, grow their vegetables in places where the wood has been destroyed by fire, and the extremely fertile soil brings their crops to great perfection.

From this point we continued our voyage to Te-Rapa, a native village at the south-west end of the lake. This was the place where the relations of our excellent guide, Titipa, lived, and where we were to stop for some time. The principal chief, Te-Heu-Heu, and many of his followers, were absent

on a war excursion to Cook's Straits, but the remainder received us in a very friendly manner, expressing their joy by firing off their muskets. Fern was spread before the house of the chief, where the principal men sat. A similarly prepared place was assigned for our seats. The natives one after the other welcomed us with displays of their native eloquence; but they threw a blight over our prospects of ascending Tongariro, by telling us that the chief, who was absent, had laid a solemn "tapu" on the mysterious mountain. From this difficulty, however, I hoped to be relieved by a little negotiation. We pitched our tent, and the natives soon brought us presents of pigs and excellent vegetables.

Lake Taupo is situated in a straight line between Cape Egmont and East Cape, the direction of which is nearly N.E. and S.W. From bearings of the compass of points of the coast astronomically ascertained, its latitude is 38° 45′ S., and its longitude 176° E. In this N.E. to S.W. direction the country is impressed with the traces of volcanic action, which indeed is still going on, and had its principal point of activity in the crater of the Tongariro, the base of which is about twelve miles distant from the lake. There are besides innumerable boiling springs, solfataras, and stufas, in the same line, and its easternmost boundary is the island of Puhia-i-wakari, or White Island, which must be regarded as the summit of a crater, still active, and but little elevated above the level of the

sea. Besides these proofs of a powerful volcanic action, there is in that geographical line a chain of lakes, most of them intimately connected with the eruptive character of the country. Of these lakes Taupo is the largest; it has an irregular triangular shape, its greatest length is about thirty-six miles, its greatest breadth not less than twenty-five; its borders are in many places deeply indented. Several rivers fall into the lake from the southward, and the common outlet of all of them is the Waikato. These rivers take their rise in the snow-covered group of the Ruapahu and Tongariro, and from the hills in the neighbourhood of Hawke's Bay. They flow through a low alluvial plain, about fifteen miles in length, and of a triangular shape. On both sides this flat is bounded by hills, which are broken by narrow ravines; an isolated dome-shaped hill, about 500 feet high, rises from this flat. One of the rivers flowing through the alluvial land is called by the natives Waikato, being in fact the largest of all the rivers or creeks flowing into the lake. Where it enters the latter, it has formed a long and low spit of mud, overgrown with bulrushes. This river carries down a large quantity of pumicestone, which mixes with the alluvial soil, or is carried by the Waikato to the sea. The northern and western shores of the lake are the most hilly, while the eastern shore is much more open. Here, to the north-east, a volcanic cone marks the place where the river Waikato issues from the lake.

The most interesting hot-springs and fumeroles are in the delta which the Waikato has formed in entering the lake on its left shore, and on the sides of the hills which bound the delta to the south-west. The scenery on the western shore of the lake is magnificent, vigorous trees overhanging the black trachitic or basaltic escarpments of the shore: here and there are native houses and cleared places on the precipitous hills. Where this shore joins the delta of the Waikato there is a narrow belt of flat land, on which stands the village of Te-rapa. Behind it the hills rise to about 100 feet above the lake. In ascending, the ground is found to be of a high temperature; the surface is often bare, or is scantily covered with mosses and lichens; it is formed of a red or white clay of a soft and alkaline nature, which the natives use instead of soap, and sometimes eat.[1] Gaseous effluvia seem to have converted the rock of the hill, which is basalt, and sometimes amygdaloid, into this clay. When we approach the top of this amphitheatre of hills, the scene which presents itself is very striking. Vapours issue from hundreds of crevices, and in most of these places there are shallow springs, the bottom of which is a soft mud, into which a stick can be easily driven ten feet. The temperature of the water is from 200° to 212° Fahrenheit. In some springs it has an argillaceous, and in others a sulphurous taste. A subterranean noise is continually heard, resembling the working of a steam-engine,

[1] Carbonate of magnesia.

or the blast of an iron-foundry. By placing some fern over a crevice, and their food (potatoes, kumeras, or pork) upon it, the natives have a ready and convenient oven.

The shore of the lake at Te-rapa is rocky; the rock is basalt, containing much augite. Some pieces are tabular, with a smooth surface. Smaller boulders are cemented together into a conglomerate by the sediment of the springs: wood, which is encrusted and polished, and of a white appearance, and rolled pieces of pumicestone, give the conglomerate the appearance of an osseous breccia. Close to the water's edge there are ponds of hot water, which, formed either by nature or artificially by the natives, are used as bathing-places. The temperature in them ranges from 95° to 125° Fahrenheit; the water of the lake itself streams in the neighbourhood of the shore; one to two inches below the surface the thermometer is often 110°, but lower down sinks to 60°.

These hills continue along the delta of the Waikato. They hide the Tongariro from our eyes, and it is only by ascending them that we get a sight of its snowy summit. All along their side we see a thick smoke issuing from numerous ravines, but the most curious assemblage of springs is about a mile from the north-west corner of Te-rapa. About half a mile from the base of the hills a tepid pond, having a temperature of 125° Fahrenheit, discharges itself into a cold river. A little farther on, in a S.E. direction, is a large boiling spring. It forms

a hollow basin nine feet long by eight broad, and about fifteen feet deep. The cold river above mentioned is twelve fathoms distant, and the spring would appear to discharge itself into it by a subterranean passage. The sides of this pond are of siliceous sinter and magnesite, which shows the process of gradual deposition. The ground all around sounds hollow. The clear, transparent water is in a state of continual ebullition, and after a repose of a few seconds it is thrown up with violence to a height of four or five feet. Its taste is slightly and very agreeably saline. Proceeding from this spring in a direction S. 30° E., we came to another large basin of hot water, but not in a state of ebullition. It discharges its waters likewise into the river, and is a circular funnel, surrounded by the same sinter. Its temperature is 120°. The taste of the water is in all respects like that of the former spring. The sides of the funnel are lined with green Confervæ. A few paces from this, towards the hills, is another large basin. Its waters are greenish, and a little sulphate of iron colours the lamina of the sinter. Its temperature is 180°. Near it are some small cold and muddy ponds.

Without describing all the warm ponds, although nearly every one of them has something singular about it, I will only observe that they are very numerous, and that close to the warm springs there are some very strong cold saline ones.

The whole of this assemblage of springs covers an extent of about two square miles. Many of them are difficult and dangerous to approach, as the whole area seems to be only a thin crust over subterranean and volcanic caverns. The surface is hard, white, and thin; below this is a whitish pumiceous and friable earth; then a yellowish earth, containing sulphate of iron or sulphur; then a chalcedony, perfect in some places, in others in process of formation. The whole is about a foot in thickness; and below this is a grey, soft, and generally hot mud. It often happens that this crust breaks in, and dreadful scaldings not unfrequently occur. Near one of the springs beautiful saucer-shaped aggregations of silex shoot up, not unlike fungi on a moist surface.

These hot-springs contain a great quantity of silex, of which are formed the stalagmitic efflorescences above mentioned, and which petrifies in a very short time all substances that are thrown into the water; it also forms deposits of a chalcedony that nearly resembles in colour and solidity the flint of the English chalk. This generally indissoluble substance is here held in solution, not only in consequence of the high temperature, but chiefly by the alkaline elements of the water. In some springs there are also found sulphate of iron and sulphuretted hydrogen gas, which is perceived by the smell. In the nature of their component parts, in their periodical issue in jets, and in their high

temperature, which must be regarded as boiling, these springs seem most to resemble those of Iceland. I shall have to describe others which rival them in grandeur. It will readily be imagined that the impression which this assemblage of volcanic waters makes upon the mind of the beholder is one of no ordinary kind; knowing as he does that only a thin and frangible crust, spreading over an immense area, separates him from a heated mass, the source of whose heat is still a mystery.

Although these springs issue from what may be considered a delta, yet the greater part of it is evidently an original formation, and the alluvial soil only occupies a small part. The hills which bound the valley to the westward terminate in a remarkable rounded hill, with a saddle-like indentation on its top, and called Pihanga te Waheni na Tongariro (Pihanga the wife of Tongariro). The Waikato flows round the southern slope of this hill, and there enters the flat country.

In ascending the hills behind Te-rapa, after passing the fumeroles on the sides, we cross over some excellent fern-land, and enter a forest, which principally consists of matai, kahikatea, and hinau (Elaeocarpus hinau). I observed here for the first time a new and beautiful species of Dracæna, with broad leaves, striped purple and green. But soon the vegetation becomes stunted, and I found myself in a desert mountainous region, surrounded by rugged hills. On the flat ground which lay be-

tween them, the rain and melted snow had collected into ponds, and in the furrows which the rills had made in the pumiceous soil there was ice. The vegetation consisted of several kinds of coarse tufty grass, dry and yellow from the cold of winter. There were scarcely any other plants in the hollow, but on ascending the ridge I found some curious ones; several of them were compositous plants. A dwarf Dacrydium, and a very small Gaultheria with purple berries, were the most interesting. The season, however, was not favourable for botanizing. The crest of this range was covered with large fragments of black vesicular basalt, ten or twelve feet in diameter. From it opened a very novel view over the heights of the Tongariro, from which a cold south-easterly wind blew with much violence. Our height seemed to be 3468 feet above the level of the sea, and 1576 feet above the level of the Taupo lake, as the temperature of the boiling water was 206·5°, and that of the air 49°.[1]

Separated from us by a valley about three miles broad, rose a bulky group of mountains, of which a very truncated cone, the Tongariro, bore due south. This cone was only partly covered with snow; white vapours rose from time to time from the top. From the sides of the hills upon which it stood, and which were steep and bare, smoke

[1] Mr. Bidwill found, near the same spot, on the 5th of March, that the barometer stood at $25\frac{11}{10}$ inches, and the thermometer at 45°.

issued from several crevices. From this point we were unable to see the Ruapahu, although it is only separated from the Tongariro by a narrow valley. It exceeds the Tongariro in height, and is at this time of the year covered with snow very low down, as I afterwards perceived when in the valley. Even in the middle of summer the Ruapahu reaches above the limits of perpetual snow. To the westward this group of mountains descends gradually into the valley, and beyond it is the Hauhunga-tahi, which, like the Pihanga, is called the "wife" of the Tongariro in the figurative expression of the natives. Hence the eye sweeps over a moderately undulating country to Cook's Straits, where, at a distance of about seventy miles, Taranaki, or Mount Egmont, appeared rearing its peak above the clouds. It bore S. 60° W. The whole of the country between the Tongariro and Mount Egmont seemed to be covered with impenetrable forest, with the exception of the immediate base of the former, which was covered with discoloured and coarse tufty grass.

In the valley below is a lake of about three miles in length, the Rotu-Aire, which forms the principal source of the river Waikato. Another lake of less extent was visible, surrounded by wooded mountains, of which one was the Pihanga. They formed a perfect basin for the lake, the level of which was evidently above that of Rotu-Aire. It is called Rotu-Ponamu.

We descended the hill through a very thick brushwood, which, however, near the borders of Rotu-Aire gave place to trees of high growth, especially matai and totara. In this forest the natives had cleared large patches of ground, and the vigour of the plantations showed the primitive fertility of the soil. The repast with which they furnished us consisted of a small fresh-water fish[1] boiled into a soup, and most excellent potatoes and turnips. After passing this plantation we halted for the night at a village on the borders of the lake, where we were well received, and enjoyed in the evening a full and clear sight of the Tongariro gilded by the setting sun. Rotu-Aire was bordered on one side by a stately forest, in every part of which patches of native cultivation and houses were seen. The base of the Tongariro itself had a seam of forest, and the landscape was altogether one of the most attractive I had seen in New Zealand. Several pas were visible, and enlivened the scene, and on a rocky tongue of land, which stretched into the lake, there was a very large fenced-in village. But here, after having reached the foot of Tongariro, to ascend which we had come so great a distance, we met with an obstacle which quickly put an end to all our gratification. We could not persuade the natives to allow us to ascend the principal cone, which we might have accomplished in four hours. The head chief of the Taupo tribes, Te Heu Heu,

[1] Elacotris basalis, Gray. See "Fauna."

was absent on a war excursion to Wanganui, and before he went he had laid a solemn "tapu" on the mountain, and until his return they could not grant us permission to ascend it. This "tapu" was imposed in consequence of a European traveller of the name of Bidwill having gone to the top without permission, which had caused great vexation, as the mountain is held in traditional veneration, and is much dreaded by the natives, being, as they tell you, the "backbone of their Tupuna," or great ancestor, and having a white head, like their present chieftain. Mr. Bidwill has since published a short account of his ascent in his 'Rambles in New Zealand,' from which I will here give an extract, taking the liberty to alter the native orthography as given by him:—

"One great peak of Tongariro slopes up from the lake; but while I was there I could never see the top of it, in consequence of the quantity of vapour always rolling up the side of the mountain from a great many hot-springs which are visible on its sides. From one of these a considerable stream of water runs into the lake, but gets cold by the time it reaches it. The side appeared quite barren, with the exception of a small belt of wood about two-thirds up the visible part of the mountain. Rotu-Aire may be said to be the real source of the Waikato, as the stream which runs out of it is called by the natives; those which run into it are very

insignificant. The mean of four days gave for the barometer $28\frac{5}{10}$ inches; thermometer about 56°.

"March 2, 1839. Several of my natives being unwell, I left them behind till my return, and started for Tongariro with only two of the lads I brought from Tauranga. Peter went with me, and several people from Rotu-Aire. As usual, the men carried the children, and the women the potatoes, &c. The procession was closed by one or two pigs, which, from the opposition they made to the efforts of their drivers, seemed to have as great a dread of Tongariro as the Mauris themselves. The road led over a tolerably level country covered with grass of many different kinds; the most common was a large wiry one, which I should not think good for cattle. There were, however, many which would be well worth cultivating. I have sent specimens and seeds of most of them to England, where I think they will thrive as well as in their native place. As we skirted the base of the mountain, in order to get at the best place for the ascent, we found the ground in general marshy, and crossed a great many small streams and nearly dry watercourses filled with large stones. The great width of these places would indicate that at some seasons of the year the whole of this country would be impassable from the quantity of water. This was a very dry season, although it had nearly exhausted the torrents. We were on Tongariro all day, but the peak was never

visible, in consequence of the mist which always covered the upper regions. I several times accused the natives of leading me astray, as I could not make out the direction in which we were going, as compared with that of the peak as I had observed it from Taupo. About four o'clock we arrived at the junction of two considerable watercourses, where my guides said we must stop, and, as I could not see any vestige of wood anywhere else, I agreed. After we had been there about half an hour, the clouds rolled out of the upper end of the valley where we were, and I saw that the cone was close to us, and then found that this, if any, was the proper place to ascend, which the natives still maintained was impossible. The trees which grew here were small stunted coniferous or taxaceous and composite ones. There were none except on the sides of the watercourse, and they did not lift their heads above the level of the top of the bank on which they grew. The stream which runs here down from the mountain is, I have no doubt (from observations I made afterwards, compared with what I observed at the time of the general direction of the country), the one called the Waipa,[1] or western branch of the Waikato. It is here a noisy mountain-torrent, about four feet deep. I regret that I did not ask

[1] Mr. Bidwill is here mistaken; the Waipa has its source at some distance from the Tongariro, to the north-west of it, in a range of hills called Rangitoto. What he saw was the Wanganui, which falls into Cook's Straits.

what they called it, as it is very likely that they knew it to be a branch of the river called the Waipa when it flows farther to the north. I found out that the road we had travelled was one which formerly led to some part of the Waikato country, but now disused, and that it was the only place where the base of the cone could be seen; that nobody had ever approached nearer than we now were; and that the reason was, they were afraid. They said that formerly when they passed this point of the road they used to cover their heads with their mats, because it was 'tapu' to look at the mountain, or at least the peak. The night was exceedingly cold, but I did not feel it so much as I did on the Waikato. I found here a most curious little plant of the yew family (Dacrydium); it was not larger than a clump of moss, and was mistaken for a moss by me when I first saw it. I found here also the curious Forstera sedifolia, and many new composite plants and Veronicas.

"March 3rd.—When I arose in the morning I was astonished to see the mountains around covered with snow, except the cone, which was visible from its base to the apex, and appeared quite close. The natives said the mountain had been making a noise in the night, which, at the time, I thought was only fancy: there seemed to be a little steam rising from the top, but the quantity was not sufficient to obscure the view. I set off immediately after breakfast, with only two natives, as all the others were

afraid to go any nearer to the much-dreaded place; nor could I persuade the two who did set off with with me to go within a mile of the base of the cone. They, however, made a fire of such small bushes as they could collect, and waited for me till I got back. As there was no road, I went as straight towards the peak as I found possible, going over hills and through valleys without swerving to the right or left. As I was toiling over a very steep hill I heard a noise which caused me to look up, and saw that the mountain was in a state of eruption: a thick column of black smoke rose up for some distance, and then spread out like a mushroom. As I was directly to windward, I could see nothing more, and could not tell whether anything dropped from the cloud as it passed away: the noise, which was very loud, and not unlike that of the safety-valve of a steam-engine, lasted about half an hour, and then ceased after two or three sudden interruptions; the smoke continued to ascend for some time afterwards, but was less dense. I could see no fire, nor do I believe that there was any, or that the eruption was anything more than hot water and steam, although, from the great density of the latter, it looked like very black smoke. I toiled on to the top of a hill, and was then much disappointed that the other side of it, instead of being like what I had ascended, was a precipice, or very deep ravine, with a large stream of water at the bottom. With some difficulty I managed to get down; and, on ascending the other

side, I found myself in a stream of lava, perfectly undecomposed, but still old enough to have a few plants growing among the fissures. As I progressed towards the cone, which now seemed quite close, I arrived at another stream of lava, so fresh that there was not the slightest appearance of even a lichen on it, and it looked as if it had been ejected but yesterday. It was black, and very hard and compact, just like all the lava I have seen in this country; but the two streams were very insignificant, not longer at the utmost than three-quarters of a mile each. I had no idea of the meaning of a 'sea of rocks' until I crossed them; the edges of the stony billows were so sharp, that it was very difficult to pass among them without cutting one's clothes into shreds. I at last arrived at the cone: it was, I suppose, of the ordinary steepness of such heaps of volcanic cinders, but much higher. I estimate it at 1500 feet from the hollow from which it appears to have sprung. It looks as if a vast amphitheatre had been hollowed out of the surrounding mountains in order to place it in. The sides of all the mountains around are quite perpendicular, and present a most magnificent scene. Thermometer at the base of the cone, fine sunshine, 65° in sun; no shade to be had: barometer $25\frac{14}{10}$.

"The cone is entirely composed of loose cinders, and I was heartily tired of the exertion before I reached the top. Had it not been for the idea of standing where no man ever stood before, I should

certainly have given up the undertaking. A few patches of a most beautiful snow-white Veronica, which I at first took for snow, were growing among the stones, but they ceased before I had ascended a third part of the way. A small grass reached a little higher, but both were so scarce that I do not think I saw a dozen plants of each in the whole ascent. After I had ascended about two-thirds of the way I got into what appeared a watercourse, the solid rock of which, although presenting hardly any projecting points, was much easier to climb than the loose dust and ashes I had hitherto scrambled over. It was lucky for me another eruption did not take place while I was in it, or I should have been infallibly boiled to death, as I afterwards found that it led to the lowest part of the crater, and, from indubitable proofs, that a stream of hot mud and water had been running there during the time I saw the smoke from the top. The crater was the most terrific abyss I ever looked into or imagined. The rocks overhung it on all sides, and it was not possible to see above ten yards into it, from the quantity of steam which it was continually discharging. From the distance I measured along its edge, I imagine it is at least a quarter of a mile in diameter, and is very deep. The stones I threw in, which I could hear strike the bottom, did not do so in less than seven or eight seconds, but the greater part of them I could not hear. It was impossible to get on the inside of the crater, as all the sides I

saw were, if not quite precipitous, actually overhanging, so as to make it very disagreeable to look over them. The rocks on the top were covered with a whitish deposit from the stream, and there was plenty of sulphur in all directions, but the specimens were not handsome, being mixed with earth. I did not stay at the top so long as I could have wished, because I heard a strange noise coming out of the crater, which I thought betokened another eruption. I saw several lakes and rivers, and the country appeared about half covered with wood, which I should not have thought, had I not gone to this place. The mountains in my immediate neighbourhood were all covered with snow, and much below me. I could not see the sea in any direction. The natives said that from a mountain near, which they pointed out, I could see Taranaki and the island of Kapiti, in Cook's Straits; and as this was much higher, I ought to have seen both places from this spot, but the south and east were entirely invisible from the cloudy state of the sky. I had not above five minutes to see any part of the country, as I was enveloped in clouds almost as soon as I got up to the top. As I did not wish to see an eruption near enough to be either boiled or steamed to death, I made the best of my way down. It unfortunately happened that the highest part of the crater's edge was to leeward, otherwise I might have stayed there a little longer. I had not got quite down to the sandy plain I have spoken of when I heard the noise

of another eruption, but am not certain it came from the crater I had just visited. I thought at the time it came from another branch of Tongariro, to the northward, on the top of which I had seen a circular lake of water when on the peak. I was half frozen before I reached the ravine, and thoroughly drenched by the mist, so that I was very glad when I found the place where I had left the natives and the fire. I got back to the tent about seven in the evening. The barometer stood when at the base of the cone at 26·1 inches, but I could not take it up farther than the streams of lava, as I had quite enough to do to get myself along, without having anything to hold. The natives said they had heard the eruption which took place as I was returning, and that the ground shook very much at the time; but I did not feel it, perhaps because I was too much occupied with the difficulties of my path."

According to the observations of the barometer which Mr. Bidwill made at the base of the cone, where the mercury stood at 25$\frac{1}{10}$ inches, and assuming that his estimate is correct as to the cone itself being 1500 feet high, it would appear that the summit of the Tongariro is about 6200 feet above the level of the sea. That it was not covered with snow must be ascribed to the increased temperature of the cone itself, caused by the internal ebullition. The limits of eternal snow must, however, be lower on the mountains which form the group of the Tongariro than

they are on the coasts, if Mr. Bidwill was not deceived when he says "*the mountains in my immediate neighbourhood were all covered with snow, and much below me!*" Those who have travelled among the snow-covered ridges of Switzerland are well aware of the illusion of a snowy mountain appearing to be below the point on which the beholder stands, while it is, in fact, much higher. The cause of this is, that distant mountains are taken to be much nearer than they actually are, from the rays of the sun being reflected from the dazzling snow, and showing every feature with great distinctness. The mountains here described by Mr. Bidwill as covered with snow are evidently higher than the cone of the Tongariro, or that which was ascended by him, and form what the natives call Ruapahu, situated a little to the south-east of Tongariro.

Rotu-Aire is one of the sources of the Waikato river. The waters of the lake are carried off by a considerable stream which flows at the southern slope of Pihanga, and, after a course of a few miles, joins the principal stream, which comes from the Ruapahu, and discharges itself into Taupo lake. The natives cannot ascend with their canoes from Taupo into Rotu-Aire, on account of rocks, which obstruct the bed of the mountain-creek, and also by reason of the numerous rapids, the level of Rotu-Aire above the sea being 1709 feet, or 372 feet more than that of Taupo. The temperature of the thermal point

at its shores was 208·8°, and that of the air 53°; the mean between the latter and that at the level of the sea being taken at 55°.

The Tongariro must be regarded as the centre of the modern volcanic action of the northern island of New Zealand; but the traditions of the natives have preserved no account of an eruption of any great extent; they however assert that sometimes thin showers of ashes are ejected from it, and are carried by the wind to some distance. They also say that they sometimes see a luminous reflection on the sky over the top of the crater. It is not ascertained whether the group of Tongariro is also the centre of the slight earthquakes which are felt in New Zealand from time to time. They have been experienced at Port Nicholson, at Kawia on the western coast, at Mata-mata in the valley of the Thames, and at Cloudy Bay in the middle island. In Mata-mata the shocks were only felt in the hills, and not in the valley.

The natives of Taupo and Rotu-Aire, at the base of Tongariro, told me of slight shocks, which proceed from the mountain, and which have occurred from time immemorial, but they have never been sufficiently important to impress a trace on their traditionary legends, unless we assume that some of their myths are records of events which have really happened: such, for instance, as the tale that the two wives of the Tongariro, Pihanga and Hauhun-

gatahi, were formerly united with him, but quarrelled, and removed each to a distance. That in like manner Mount Egmont and Tongariro were once united, but the two had a dispute, and separated. At Maupere, a lake between the Bay of Islands and Hokianga, the natives have a tradition of a large pa having sunk into the lake. A similar occurrence really happened at Rotu-rua, but the latter was an event entirely local, as the pa was built on the deposits of hot springs, which form a very thin cover over an undermined or soft subsoil. We might be induced to regard Lake Taupo, with the Tongariro, the chain of lakes which runs to the east coast, and the numerous fumeroles, solfataras, and hot-springs in their neighbourhood, as one connected hearth of volcanic action, which terminates in the island of Puhia-i-Wakari, or White Island, which is also a smoking solfatara.

Besides the Waikato river, the Wanganui and the Manawatu, the most considerable rivers in the northern island, take their rise in this group. Like the Waikato, the Wanganui receives a tributary from a lake which is situated at the southern base of Tongariro: this lake is called Taranaki. The natives descend the Wanganui to its embouchure at Cook's Straits in four days.

The Manawatu seems to possess greater advantages. According to the natives of Taupo it is a very winding stream, and consequently forms pad-

docks. Its shores are less hilly than those of the Wanganui, and are partly open fern or flax land, and partly wooded.

The Rangatiki is a smaller river, also coming from the Tongariro, and falling into Cook's Straits. In Cook's Straits, and at the mouth of the Waikato, I observed a great quantity of pumicestone: all this is carried down from the Tongariro by the rivers Wanganui and Waikato; and it is not improbable that considerable quantities of it are borne by the currents to the shores of New South Wales, where I found it, especially in Newcastle, at the mouth of the Hunter's river. The eastern and the southern shores of the Taupo lake consist of high pumicestone cliffs, which are continually undermined, broken down, and carried away by the current of the Waikato.

The natives of Rotu-Aire are a division of the Taupo tribes, and amount to several hundreds. With the exception that they would not allow us to ascend their mountain—and to grant the permission was, perhaps, really out of their power during the absence of their chief—they were very friendly to us, and appeared to be in a very primitive state, which, however, was not, in my opinion, at all to their disadvantage.

On the 21st of May we returned to Taupo, driving before us two pigs, a present from our kind hosts. Our road led us along the base of the Pihanga, and I gained with difficulty the precipitous

and rocky basaltic shore of the Rotu-Ponamu, which is surrounded by almost impenetrable underwood. This little lake lies in a perfect funnel, formed by the surrounding mountains, which rise on one side to a crest of considerable height. It is about a mile and a half in circumference, and apparently of great depth, and has no visible outlet. In looking down two days before from the summit of the neighbouring hills, I thought that its level was above that of Rotu-Aire, which is about a mile and a half distant, and I was glad to find this opinion confirmed by a measurement with the thermometer, which showed the boiling-point at 208° Fahrenheit. This, with a mean temperature of 55°, gives for the height of the level of Rotu-Ponamu 2147 feet above the sea, being 438 feet above the level of Rotu-Aire, and 810 feet above the level of Taupo lake.

From this point a very good road leads through a delicious, dark, and beautiful forest into the upper part of the delta of the Waikato, the region of the mineral springs which I have above described. When we arrived in the Rapa, we found that two missionaries had come the same day: one, the Rev. Mr. Brown, from Tauranga, in the Bay of Plenty; and the other, the Rev. Mr. Chapman, from Roturua.

Everywhere round Lake Taupo are small native settlements, but the population seems to be scanty, considering the excellent land in the neighbourhood. I do not estimate their total number at

more than 3200, including those at Rotu-Aire. The general name of the tribes is the Nga-te-tua-retoa. Their principal points of communication are the coast at Otaki, a settlement of the Nga-te-rau-kaua, and at the mouths of the Manawatu and Wanganui, in Cook's Straits. With the natives of the latter place their communications have more frequently been hostile than friendly. They attacked them in 1840, but were repelled with great loss; and, as already mentioned, they had again gone thither with hostile intentions. The Church missionaries have a few native catechists here, and Christianity is beginning to spread amongst them. Heu Heu, the principal chief on the lake, told Mr. Chapman, at his last visit, that he would only have one more fight with the tribe at Wanganui, to settle his old grievances, then make a durable peace, settle down, and "believe." The natives whom I met were decidedly the best specimens of the race that I had seen in New Zealand, and excelled in their hospitality towards strangers, in prudent attention to their own affairs, in cleanliness and health, most of those who live on the coasts, and who have become converts to Christianity. I shall always remember with gratitude the manner in which we were treated by Te Heu Heu's brother, a grey-headed old man, who, in the absence of the chief, held the highest authority over the tribe.

In regard to the animal kingdom, the centre of the island is as scantily provided as the rest. The

native rat still lingers here and there, although it has disappeared on the coast; the native dog has become a mongrel; ducks, teals, the red-billed porphyrio or pukeko, a large bittern, a tern, two kinds of gulls, cormorants, and some of the smaller birds which also inhabit the coast districts, are found here. In the lakes are three kinds of fresh water fish, of which one is an eel: these form a great part of the food of the natives. The craw-fish is also found here, as indeed it is in all the fresh-waters of New Zealand. Wood is sufficiently plentiful to supply the wants of the natives, although on the whole the country is rather scantily furnished with it. The canoes are generally made of totara.

The climate, as was to be expected, is rather more severe in the interior than on the coast, but it seems to be more equable. We often had frost in the morning, but towards noon the thermometer rose to from 65° to 70°. Although the season was far advanced, we enjoyed the most beautiful weather at the very time that excessive rains fell at Auckland. Several times in the night violent winds descended from the heights of the Ruapahu, blowing almost a gale, and more than once upset our tent. When this occurred we were almost benumbed with cold whilst endeavouring to refix our tent according to the shifting of the wind; but the natives from the neighbouring pa always came quickly to our help, generally rushing in a state of nudity out of their

warm houses, and, with mirth and laughter, soon helped the pakea (stranger) to put up his house.

If Tongariri is the right way of spelling the name of the volcano, instead of Tongariro, it is a very appropriate name, as it means "angry south wind;" and I can easily imagine that violent gales, occasioned by the inequality of the temperature, often agitate the waters of this great lake, and that it is not without good reason that the natives are so careful in trusting themselves on it in their flat canoes.

The scenery of Taupo lake, the whole character of the landscape, the freshness and peculiarity of the vegetation, with the white smoke rising around from so many hot-springs, are singularly beautiful, and well calculated to attract visitors from all parts of the world. The excellent disposition of the natives will ensure every one a good reception who does not come with the arrogant and ridiculous prejudices which are too frequently characteristic of a European traveller.

On the 25th of May we took leave of our friends at Te-rapa. There were so few men in the village, that we could not get any new guides for Roturua, but our former guide Titipa offered to conduct us to Motutere, a well-populated pa on the east side of Taupo lake. We accordingly took a canoe, and passed the mouth of the Waikato, which is divided into three arms, of which the largest is about 100 yards broad. Here we landed, and came to a pa,

the high fences of which stretched about half a mile along the banks of the lake, which were strewed over with pumice intermixed with small pieces of black obsidian. The village, although full of well-constructed native houses, had no inhabitants, as it was a pa used only as a place for the tribe to assemble in in times of war. I had leisure to examine it, and found most of the houses ornamented with carvings, and containing the usual domestic utensils of the proprietors. In some boxes which stood upon poles were the bones of children and adults, deposited here as their final resting-place. In the vestibule of one of the houses I found the head of a young girl in a basket, prepared in the manner which has long been so well known, and of which so many specimens have been conveyed to Europe. This was the first time that I had seen one of these embalmed heads. The custom was once very common, but is now falling rapidly into disuse. Not only the heads of enemies were thus prepared and planted upon the palisades which surrounded the pas, but also the heads of relations, as a missionary assured me; and these served from time to time to excite violent grief and expressions of sorrow in the surviving relatives. The high poles which surrounded this pa were carved at the tops with human figures in a defying position, and with a fierce expression of countenance.

Not far from this place we crossed another river. Here a rocky promontory, connected with the main

by a low strip of land, stretches out into the lake. The alluvium on the banks of the lake is gradually increasing, as is shown by low parallel ridges along the shore, indicating the former margins. Towards evening we passed another large creek nearly opposite the outlet of the Waikato, and arrived at Motutere, a large pa built on a tongue of land which reaches out into the lake. The natives were few, as the greater part were living at a settlement in the neighbouring hills, where they had their plantations. This was a Christian settlement; and Aberahama, or Abraham—such was the name of the principal man—lodged us in the church. Titipa warmly recommended us to our new entertainers, and the next morning took his departure. He had become so attached to us, that he could scarcely tear himself away. He turned back again and again, to see us once more, and to expatiate upon our merits to those into whose kind keeping he had safely delivered us, and to recommend them to treat us with the same care as he had done. He had shown himself during the whole period of our acquaintance with him a noble fellow, and of the most generous and disinterested disposition.

The rocks near Motutere at some places approach close to the banks of the Taupo lake, at others retreat farther inland, where they form high cliffs. They are composed of a clayey lava, sometimes hard and basaltic, sometimes striped like jas-

per. From Motutere we enjoyed a fine sight of the Ruapahu and Tongariro.

26th.—The reason why Titipa would not accompany us any farther was, that hostilities existed between the tribe of Roturua and his own, that of the Waikato. Three natives remained with us, but, being slaves, they had nothing to fear. Abraham, however, had promised to procure us men; we therefore started on the 26th in one of his canoes, and pulled for a few miles along the shore. We then landed, and struck inland over an extremely hilly country, to a settlement in the forest, where we found a good number of natives very busy in constructing houses and clearing the land for the coming spring. They have an implement made of very hard wood with a horizontal piece attached to it, and with this tool they work very expertly. A tufaceous gravel constitutes part of the soil covering these hills, which show in some places great fertility. The tribe living here is called Nga-te-terangita, a division of the Nga-te-tuaretoa.

It is evident that forest has at some former period covered a greater extent of land in the neighbourhood of Taupo than it now does; it does not appear to have been destroyed by volcanic eruptions, but by the fires kindled by the natives in order to clear the ground for the purpose of cultivation. Notwithstanding this former forest, the

soil seems to be almost entirely made up of tufaceous and pumicestone lapilli; and it appears to me to be very probable that the vegetable earth which must have existed in such places has filtrated through the porous subsoil, and it may therefore be expected that a judicious over and underworking would greatly improve the land. I will make one observation here, which, although it cannot be new to practical farmers, is at variance with the opinion of a great many colonists who are not farmers, and may, perhaps, be useful. The colonists to whom I allude believe that burning the vegetation which covers the land, whether consisting of fern, bushes, or forest, improves its condition. In large tracts of alluvial soil, which is *per se* generally rich, as on the plains of the Mississippi, in the deltas and courses of the Rhine and Danube, the burning of the forest must certainly be the quickest way of clearing the land, and the loss of vegetable matter in the process of burning, where there is a great depth of alluvial soil, cannot be of any great importance: but in New Zealand the plains are not, strictly speaking, the produce of the rivers; they are a table-land, composed of a stiff clay, which can scarcely be worked, and which was deposited as we now find it, not by the rivers, which are too insignificant to produce such results, but at the original formation and heaving up of the land. At the borders and outlets of the rivers there is only a small extent of true alluvial soil, the rest derives all

the fertility it possesses from a vegetation which has covered it from the beginning, has decayed annually through ages, and has thus formed a layer of vegetable mould, in most cases very thin. If this vegetation be burnt down, the wind carries away the light ashes—another vegetation springs up, but less vigorous than the first, until by repeated conflagrations the land becomes perfectly exhausted.

Large districts in New Zealand have in this manner been rendered very poor. If the soil is originally covered with a forest, the vegetation after the first conflagration is a luxuriant underwood; if this is burnt down in its turn, high fern and flax spring up; if the burning is repeated, the new flax is much lower, the fern less vigorous; they intermix with the Leptospermum and Gaultheria, which delight in a meagre clayey soil, until at last stunted fern, rushes, club-mosses, and meagre shrubs of Leptospermum are the only plants which the soil is capable of producing; and many places are even quite bare, and show the white clay, which resembles pipe-clay. As the natives, from a knowledge of the nature of their plains, prefer, with few exceptions, the scattered ravines and hills for their plantations, they are continually lighting fires in order to clear a road when they are travelling, and these have not failed to produce their natural effect. In New South Wales I observed this destructive influence to a still greater degree. When travelling

up the river Hunter I saw spots in the forest where large gum-trees (Eucalyptus) had been burnt; their existence was indicated by a heap of reddish ashes, and although many months had elapsed since the trees were consumed, yet not even grass had sprung up in their stead.

On the night of the 26th we had a great many natives within and before our tent, listening with profound attention to an explanation of what constitutes a European state. According to the notions they have acquired from the missionaries, the Europeans are divided into—

1. Mihaneres (missionaries).
2. Hohios (soldiers).
3. Revera (or devils).
4. Cookies (or slaves).

The devils comprise all who are neither missionaries, soldiers, cookies, as the captains of vessels, merchants, or gentlemen, with which latter subdivision they have but lately become acquainted. To the cookies belong the artisans, sailors, and so on; and they are, according to a New Zealander's notion, the slaves of the captains, missionaries, or gentlemen. The Protestant natives regard their Roman Catholic brethren as belonging to the devils: they are called pikipo, which M. Pompalier, the Roman Catholic Bishop of New Zealand, explained as being derived from *episcopus*, which seems to me the most probable derivation. The Protestant missionaries however, say that it means piki-po—always bowing

—(piki, bend—po, night). The Protestants, therefore, call their bishop pihopa, while the Roman Catholics have retained the title pikipo for theirs. The spirit of intolerance, in which the natives are confirmed by the missionaries of both religions, has taken a strong hold on their minds, and its effect has been, that the Roman Catholic converts have more firmly connected themselves with those of their countrymen who continue heathens; and their ancient feuds are now carried on under the garb of religion. It is very fortunate for the New Zealanders that a third estate has been established in their country by the introduction of Her Majesty's Government, of which missionaries, soldiers, and devils are equally beloved children, owing to it equal obedience, and enjoying equal rights.

The natives promised us guides to Rotu-rua if we would wait a few days, until they finished the houses which they had begun; but my companion was anxious to be again under the roof of a European, as for several weeks past our food had consisted only of fresh pork and potatoes, without the luxury of salt or anything to give it a relish. As for myself, I bore it very well, although I generally found that the disuse of salt and the uniformity of food caused one or two abscesses, to which I am not subject at other times. These are very common amongst the Europeans on their first arrival in the island: slight wounds are also found not to heal well and quickly. But this seems to be the only

effect produced by the moisture of the air during their acclimatization, as sickness is scarcely known amongst those who have been for some time in the country. After we had in vain tried all our powers of persuasion to obtain guides before the time which they had named, we started on the morning of the 27th with our three remaining natives. I had to make a heavy sacrifice, as I was obliged to leave behind me nearly all my Taupo minerals, and specimens of the mineral waters of the country. The remainder of our luggage made six heavy loads, of which each of us had to carry one. Our stock of provisions was very scanty; our natives were strangers to this part of the island, and did not know the road to Rotu-rua, but we trusted to our good fortune to find both food and road. We returned to the shores of the Taupo lake, and travelled along its eastern bank. The road was very bad; pebbles of pumice and soft sand made walking very difficult. We passed cliffs of pumice-stone, which were elevated about one hundred feet above the level of the lake. In some places there was a greyish lava of a striped and variegated appearance, resembling jasper. We came in the evening to a pa near the north-east corner of the lake. It was newly built on a neck of land that separated a small lagoon from the lake, into which, however, the water of the lagoon was discharged by a little stream, which guarded one side of the pa. Around this village the hills were very rugged and steep.

The small tribe of natives who lived here at first received us well. They cooked some potatoes for us, and, as a cold south-easterly wind blew, we went into a house to eat them. This house was their Ware Karakia, or church, as they had lately become "missionaries," and they appeared so exasperated at the idea that we should seek shelter in a church, that from this moment we were pronounced to be "devils," and all good feeling towards us was gone. We quitted the building immediately, and pitched our tent; but all our efforts to obtain provisions, and a guide to show us the road, were in vain. We renewed our entreaties on the following day, but could get nothing from them except a small basketful of potatoes, which a man presented to me in consideration of two needles I had given to him. These natives were quite the reverse of our kind friends at Terapa; but I afterwards heard that the tribe consisted chiefly of men who had formerly been slaves, and that they were noted for their churlishness and want of hospitality. In spite of all possible caution and forbearance on my part, I have several times met with a bad reception, and always found the cause something connected with missionary, I will not say Christian, observances. The misunderstanding generally arose from some exaggerated idea of what was required of them by the missionaries, a fault very usual among new and zealous converts.

Two native travellers, who belonged to the tribe of the Nga-te-meniopoto, on the upper part of the Mokau river, and were returning to their homes from a visit to the Waipa, were in the pa, and present during the discussion. They expressed their indignation at the inhospitable treatment we received from their countrymen, who would not even tell us our road. The only information we got was from these two strangers.

CHAPTER XXV.

Rotu-kaua—Rotu-Mahana—Tera-wera.

On the 28th of May we started, with scarcely any provisions. We still followed the borders of the lake. The land is here low table-land, strewed over with pumiceous gravel. Its aspect is very unpromising, as the only vegetation is a yellow tufty grass and a few composite plants, which, however, were dried up. When we were about eight miles from the pa, and in no very good humour, we were not a little pleased with the sudden apparition of a family of—pigs. A large sow immediately received a deadly wound, and in less than ten minutes the natives who were with us had cleaned and cut the body into six parts, and each of us burdened himself with a piece. They were probably wild pigs, and therefore the property of any one who can shoot them; but, to secure myself from reproach, I left a pair of trousers, together with the entrails of the pig, on a neighbouring bush, and also our camp-kettle, which I thought had now become useless; but in the evening I learnt that our own attendants had taken both trousers and camp-kettle with them. They

told me it was a custom that the stranger should have food, and, if he could not get any given him, he was entitled to take it where and how he could. The disappointment which our last night's hosts would feel when they perceived by the entrails that we had obtained for nothing what they had refused to give us even at a high price, filled our three natives with delight, and was the subject of much mirth during the whole evening. We took up our quarters on the banks of a large bight, which the lake of Taupo forms at this place, and from which the Waikato issues. Large blocks of a black basaltic lava were lying along the verge of the water. We obtained sufficient fire-wood from a totara-tree which had been washed on shore. The only other wood within our reach was slender stems of the kahikatoa. On this side of the lake wood is very scanty, and is only seen on the top and in the ravines of the Maunga-Tauhara.

The Waikato is here a very considerable stream, about three hundred yards wide, and apparently very deep. At a distance of about ten miles from us white smoke rose at different points in regular jets, showing the existence of hot-springs of considerable size. On the 29th we followed the shores of the bight, and here also steam was issuing at many points on the banks, and from the water of the lake itself near the margin; in the lake the water was lukewarm. Several streamlets coming from the Maunga-Tauhara here discharge their

warm waters into the lake. They have a hydro-sulphurous taste, and the air in the neighbourhood smells sulphurous. At this place we left the lake of Taupo, and struck inland towards the foot of the Maunga-Tauhara. A drizzling rain fell, and our journey became very disagreeable, as we had scarcely a path, and followed at hap-hazard the direction in which we thought Rotu-rua to be situated. We passed holes and crevices from which steam issued, and the whole base of the mountain was enveloped in a belt of smoke. The country, although table-land, was intersected by ravines, and presented dells or hollows; it was broken in many places, and had a remarkably barren appearance: what little vegetation there was of wiry grass and manuka bore in many places the traces of burning. We passed a solfatara, with fine crystals of sulphur and efflorescences of aluminous salts. In their neighbourhood the country is still more blighted. After we had passed the base of the Maunga-Tauhara, we slowly descended towards a lake which was situated on its north-eastern slope, and around which the vegetation appeared much fresher. As the rain continued, and we were already wet to the skin, we halted about a mile from the lake. It is about three miles in circumference. At its northern end are cliffs of a white colour, and thick white vapours which issued there enveloped that end almost continually. We had pitched our tent about a mile from the lake, but, as we had no water near us, we

had to send the natives to the lake for it. On their return we found, to our great annoyance, that the water was strongly impregnated with alum; but we were obliged to use it, as the rain-water which was washed down the tent had a smoky taste still more disgusting. This was the most miserable night I ever passed in New Zealand. My friend Symonds was very ill, and the only medicine I could give him was a tea from the aromatic leaves of the Leptospermum, but made with alum-water. We had not found any fern, and were obliged to sleep upon the hard and wet bushes of the same plant, which served us, therefore, for tea, medicine, bedding, and fire-wood. We could only venture to distribute a small allowance of pork, as we did not know how long it might be before we fell in with any other provisions. It rained during the whole night, and drenched all our clothes and blankets. The aluminous lake, as I afterwards ascertained from the natives, is called Rotu-kaua (bitter lake).

On the 30th of May a warm and sunny morning restored our spirits. We dried our clothes and started through a country which gradually improved. In some places it was a moorland, in others covered with fern and flax. We passed several creeks, and after two hours' walk arrived suddenly at the shores of the Waikato. The river had hollowed out a deep bed, and its banks were formed of high cliffs. It was apparently very deep. On its left shore were some Maori houses, but nobody was to be found in

them. Our call was only answered by a remarkably distinct echo which resounded from the hills. The river was about 200 yards broad, had a rapid current, and was very winding. To increase our scanty stock of provisions I fired at some ducks, which were the only living creatures visible, but they were too shy to afford me a good chance, and I missed them. We were quite at a loss how to proceed from this point, but at last we struck to the eastward, after having spent a long time in searching for the proper place for fording a deep and rapid creek which here discharged itself into the Waikato. We went towards a range of hills which run nearly from north to south, with branches extending towards the table-land of the Waikato river, with narrow valleys between; the top of this range was barren and thinly covered with vegetation, but in the gorges shrubs and fern proved the fertility of the soil. We intended to cross this range, and made therefore for one of the gulleys. How great was our own delight and that of the hungry natives with us when we found a fine potato-ground in the gulley, and leeks and cabbages growing wild! The sides of this small ravine consisted of cliffs of pumicestone or tufa; and here the proprietors of the potato-ground had hollowed out deep caves, which were secured from without and were full of potatoes. Snares made of flax-leaves were laid all around the entrance, for the purpose of destroying the rats. In one of these excavations,

about thirty feet below the surface of the cliff, I found some charcoal of monocotyledonous and dicotyledonous plants; a curious discovery, as proving that those cliffs of tufa and pumice were formed after vegetation already existed in the country. The remains, however, were too indistinct to enable me to distinguish the particular species of plants to which they had belonged, except that the monocotyledonous plant appeared like the remains of a typha. One of the holes filled with potatoes had been left open for the use of travellers, as is customary in New Zealand, and to us this liberal custom proved a great relief.

The next morning we espied, through the thick mist which covered the neighbouring hills, two natives. They soon came down to us, and proved to be two respectable "Mihaneres" going from Taupo to Turanga or Poverty Bay. They told us that this journey would occupy them ten days, that the road led up and down hill, and that most of these hills were devoid of forest. Their arrival proved of great benefit to our party, as they told us, as indeed the compass had already told *me*, that we had gone in a wrong direction. We induced them by a present of two blankets to hide their own load and show us the way to Rotu-Mahana, whither, they said, it was three days' walk; they also carried potatoes for us: I suspect, although they said nothing to us to that effect, that they had some share in the providential potato-ground, which was what

is called a *travelling potato-ground*, serving as it were in the place of an inn. We again diminished our loads, and, amongst other curiosities, a wooden carved head of the old chief Waikato, made by himself, and which I had carried during many weeks, here found, to my great sorrow, a resting-place. We had to go back to the banks of the Waikato, and follow its right shore for several hours. The country was flat, although intersected by gorges and ravines. The Waikato had a very deep bed, and its banks showed cliffs of pumicestone. Although the river was deep and rapid, yet nothing could be more apparent than that it had had no part in the formation of the valley. How considerable must have been the volcanic eruption that covered this immense district with pumicestone or lapilli, which show, where they are exposed in sections, a uniform character throughout, and seem not to be the work of any subsequent eruptions! From the slight degree of decomposition which had taken place in these lapilli, I should imagine that they must have been ejected at a comparatively recent date in the earth's history. We passed several hot-springs, from which clouds of steam arose, and many solfataras, which were small hillocks of the purest sulphur covered with a black crust. We halted at night near a rapid creek, a tributary of the Waikato. The land was perfectly level, but preserved its barren character. A large swamp separated us from another group of powerful springs, which, as

I afterwards heard from Mr. Chapman, the missionary at Rotu-rua, are very interesting from their peculiar petrifying qualities; some specimens of which we saw at his house.

On the 1st of June we passed a hill at a short distance to the northward of our route. It was of considerable elevation, and had its original composition almost entirely converted into red or white clay by the hot gases which issued from its whole surface. Towards evening we reached the hills which surround on all sides the Rotu-Mahana (warm lake). When we arrived on the crest of these hills, the view which opened was one of the grandest I had ever beheld. Let the reader imagine a deep lake of a blue colour, surrounded by verdant hills; in the lake several islets, some showing the bare rock, others covered with shrubs, while on all of them steam issued from a hundred openings between the green foliage without impairing its freshness: on the opposite side a flight of broad steps of the colour of white marble with a rosy tint, and a cascade of boiling water falling over them into the lake! A part of the lake was separated from the rest by a ledge of rocks, forming a lagoon in a state of ebullition, which discharged its waters into the Rotu-Mahana. We descended to the lake, but a heavy rain came on, and night surprised us.

After having crossed a streamlet of a blood-heat, we found ourselves up to our knees in a muddy swamp, without knowing how to proceed, as our

native attendants were still far behind. At last they arrived, and led us to a higher piece of ground, where we pitched our tent, as we did not venture, though all our provisions were exhausted, to go any farther, for our two guides, who were well acquainted with the place, said there was a very bad swamp to be passed before we could reach the native settlement, and that it was doubtful whether there were any natives there. They themselves, however, started, and promised to be back early in the morning with a canoe and food.

On rising the next morning we found the lake covered with waterfowl, among which were the beautiful porphyrio, ducks, and snipes, and also gulls, which feed upon a small fish that abounds in the lake. Before our guides returned, I had shot a great many of the unwary pukeko, or porphyrio, which proved excellent game. Some natives came in a canoe to fetch us over the lake to their settlement. Mr. Chapman, from Rotu-rua, was probably the only European they had ever seen, as this lake has not been visited by any other that I am aware of: but, nevertheless, they very kindly brought potatoes and fish with them. We were first conveyed to the cascade which we had seen the evening before, and which is called Wakatara. The steps proved to be the siliceous deposits of the waters of the hot pond above it. We ascended the steps, which are about fifty in number, from one to two feet broad, many of them, however, having subdi-

visions resulting from the gradual deposition of the silex. The water which falls over them was moderately tepid. The steps are firm like porcelain, and have a tinge of carmine. The concretions assume interesting forms of mamillary stalagmites of the colour of milk-white chalcedony; and here and there, where the rounded steps overhung the former deposits, stalactites of various sizes were depending. The boiling pond on the top, which was clear and blue, could not be approached, as the concretions at its margin were very thin and fragile. The pond was about ten yards round, and perhaps one hundred feet above the level of the Rotu-Mahana. The water which is discharged into the lake from this pond and from other places warms its waters to 35° Fahr. above the temperature of the air, that is, to 95°. There are also springs in the lake itself, as in many places bubbles are seen rising up. On the banks of the lake are a great many openings from which steam issues. We afterwards landed on a small rock in the lake, composed of a felspathic lava; the natives had some houses on it, and cooked our food over a steaming crevice, while I bathed in the warm lake.

The Rotu-Mahana is not more than a mile in circumference. We crossed from it in a canoe into the lake of Tera-wera. The stream connecting them is tepid and of a temperature of 85°. It is more appropriately called Kai-waka (canoe-spoiler), as the canoe often touches the rocks of which the bottom

is formed. It is rapid, but narrow and serpentine. From its banks issue numerous hot-springs, and another flight of siliceous steps ascends the bordering hills. Into the Kai-waka a cold stream also discharges itself, which is the outlet of two smaller lakes on the right shore, called Rotu-Makariti (cold lakes). When we came into the Tera-wera lake, the shores became steep and rocky (trachitic). To our right there rose a curious mountain consisting of several truncated cones, and exactly resembling a fortification, as the upper borders of the cones were fringed all around with perpendicular rocks. This hill is called Motunui-arangi. The rocky shores of Lake Tera-wera are lined with pohutukaua-trees; other vegetation also overhangs the cliffs and peeps out of the fissures of the rock. I was somewhat surprised to find the pohutukaua-tree (Metrosideros tomentosa) on this inland lake, as it is a tree which I never before found but on the sea-shore. This may perhaps be regarded as another confirmation of the theory that the lakes which run in a continued chain from Taupo to the eastern coast are the remains of a former arm of the sea, and have been shut up from it by an uplifting of the land. In the summer, when the pohutukaua-trees are covered with their red blossoms, the scenery at this lake must be most beautiful.

We came to a small native settlement in a nook of the rocks, which hung over it on all sides. In this little bight were several warm springs, which

the natives had surrounded with stones, and had thus formed basins, in which they were continually sitting. These warm waters served them in the place of fires, as they jumped in as often as they felt cold, and this mode of treatment did not seem to do them any harm, as they looked remarkably healthy. I imitated their example in the night, and found the bath very agreeable. Our kind hosts gave us the best reception in their power.

In the morning I ascended with some difficulty the highest of the hills surrounding the little bay. I observed from the top a small lake, which bore south 60° east, and in the same direction, and situated among the hills, were two smaller lakes, the Rotu-Makariti (cold lakes), which I have mentioned above as discharging their waters into the Kai-waka. The country over which I looked was of a very hilly description, and only partially wooded. The tops of the hills were covered with a low brown vegetation of grass and fern, and their configuration bore proofs of their volcanic character.

CHAPTER XXVI.

Rotu-Kareka—Rotu-rua.

THE lake of Tera-wera is about three miles long, and of the same breadth, although of an irregular shape. We crossed, coasting along the rocky shores to its eastern extremity, where we passed a well-populated pa. Here the lake of Tera-wera is separated from the lake Kareka only by a neck of land a mile in breadth, and forming a well-cultivated ravine. Our two native guides had returned in the morning, to continue their journey to Turanga. At Tera-wera we were joined by a party of natives from Rotu-rua, armed with muskets, and driving some pigs. They were very noisy fellows, with the exception of those who seemed the first in rank. I had heard before that the natives of Rotu-rua were the most primitive tribe in New Zealand, and still resist the inroads of European manners, and these men confirmed the report. They soon took care of all our loads, after they had examined our persons and expressed aloud their astonishment. Their curiosity, however, was somewhat importunate. I heard afterwards that they had just returned from

a taua, or a robbing excursion, into the country of the Waikato, with whom the tribe of Rotu-rua is in constant hostility. When we arrived at Rotu-rua Captain Symonds and myself found ourselves each minus a shoe, which our guides had probably pilfered; but we got them again for a salvage, as they said that they had found them. At Kareka they fired their muskets as a signal for a canoe from the other side of the lake, and at length a woman came paddling over in a perfect nutshell: it was so small that the least movement would have upset it; and as there was no possibility of its carrying all of us, I at first determined to walk with my natives along the shore, but eventually we were carried over in the same canoe at its second trip. The natives of Rotu-rua did not cross the lake, but quitted us at Kareka, following another road which led to their own home. They did not like to have anything to do with the Christian natives on the other side of the lake. The lake of Kareka is of an irregular shape, about six miles in circumference; the shores are hilly or rocky, generally wooded, and the soil of a fertile description. The lake is as picturesque as those I had already passed. I was told that at a little distance from this lake is another, the Rotu-Kakai, but I did not see it. We pitched our tents in the evening at a small settlement, the commencement of a village of natives who had lately become Christians: they were all busily occupied in building, and amongst the houses was a large struc-

ture for a church. As usual, I had to dispense relief to the sick; and I made a little jalap-powder, the only medicine which remained to me, go a long way.

On the morning of the 4th our hosts conveyed us in a canoe to the northern end of the lake, whence we crossed a chain of low wooded hills, about seven miles broad, on our way to Rotu-rua. The road lay through ravines, which, although at present much above the level of the two lakes, seemed to indicate a former communication with both of them. The morning was fresh and stirring, and our road as beautiful as the primitive wildness of the country could make it. It was still early when we descended towards the large lake of Rotu-rua, which is here surrounded by a low flat, consisting of pumicestone, gravel, and decayed earth. We passed a small lagoon of rather sulphurous water, separated from the lake, and soon arrived at the mission-station of Mr. Chapman; that excellent man received us with the greatest kindness under his hospitable roof. We stayed here during a week; and I had a good opportunity of becoming acquainted with the lake of Rotu-rua and its neighbourhood.

This lake is about twenty-four miles in circumference, and nearly circular. The hills which surround it are low, but to the westward they rise to the height of about 800 feet. This latter range is wooded; and wood is also found at some other places near the lake, giving a rich variety to the

scenery; but generally the country is open and covered with fern. The singular distribution of the woods shows that a great part of them have been destroyed artificially. In some places there are the black stems still standing. The destruction was evidently occasioned by the natives burning the wood when clearing patches for cultivation. This method they were obliged to repeat frequently, as the soil soon became exhausted, compelling them to seek fresh spots of ground.

The circumstance that renders the lake of Roturua particularly interesting is the number of hot-springs which at several places rise close to its banks: those on the south side of the lake are the most powerful; they consist of numerous smaller or larger basins, and from several of the openings every five minutes a column of steam and water, of two feet in diameter, is thrown up with great violence to the height of three or four feet. All around the springs a jasper-like deposit is found, which is either soft, like chalk, or forms what is called porcelain jasper and magnesite. In some places it is of a white or greyish colour, and when soft adheres to the tongue, in which state the natives use it for making pipes, which, however, are now scarce, as the European pipes have superseded them. The largest village is built close to the springs, and the natives have from time immemorial used them as a natural kitchen for boiling their food. The water of several of these springs

is clear and nearly tasteless, and its temperature is above the boiling-point. The pa, which is the finest I have seen in New Zealand, occupies a large surface, which is actually intersected by crevices from which steam issues, by boiling springs, and by mud volcanoes. It requires great care even for the native to wind his way through this intricate and dangerous labyrinth. Accidents are very common, as the thickness and solidity of the insecure crust upon which the pa is built are continually changing, and the ground sometimes suddenly gives way at a place where shortly before it appeared to be perfectly firm. At one time a part of the village close to the edge of the lake subsided several feet, and the water took its place. The palisades are still visible, and standing upright under water. In some places only a narrow path leads through a field of boiling mud; and in the neighbourhood of the pa are a great many of those curious mud-cones which I have already described. Some of them were ten feet in height.

The structures in this pa—the houses, doors, and palisades—displayed the most ingenious pieces of native workmanship. I have nowhere else seen carvings in such profusion, and some of them were apparently very old. Many of the figures are representations of the progenitors of the tribe, and the collection of figures in and around each house may be considered as serving as the genealogical tree of its owner. Each of the representations of the human

figure bears the name of some tupuna, or ancestor, and the whole is actually a carved history. Nowhere in New Zealand have I seen anything that could be regarded as an idol, although some persons have said that such exist. This absence of all carved gods among the New Zealanders appeared to me a very attractive trait in their national character. They are too much the children of nature, and perhaps too intellectual, to adore wooden images or animals, and I often heard the heathen natives deride the pewter images of the Holy Virgin which the Roman Catholic priests have brought into the country. They are superstitious, it is true, but not more so than we should expect as the result of the influence with which their mind is instinctively filled by the powers of Nature. What a noble material to work with for the purpose of leading them towards civilization! Within the pa some were busy carving, or working at canoes, whilst others enjoyed the *dolce far niente*. The whole scene was complete in itself, and singularly interesting. Comparing the upstart settlements of missionary natives with this old heathen pa, the former really look extremely miserable and tame.

The mission-station is on the eastern shore of the lake. About 150 natives, who have become Christians, have built themselves houses there. A valley runs from the station to the eastward, and in several places is rich and fertile. In its upper part, about three miles from the mission-houses, are more

hot-springs of sulphurous water, together with solfataras, or cones of pure sulphur, and mud volcanoes. A warm stream comes down the side of a hill, and has left a whitish deposit in steps; fine crystallizations of sulphur are also deposited in large quantities. On the north-east shore the lake is evidently making inroads. The banks form cliffs, which are undermined by the water during south-westerly winds, and fall into the lake. About thirty or forty yards from the banks there are the remains of trees standing upright in the water, evidently at the places where they grew.

If the country around the lake of Rotu-rua is not very fertile, it cannot be called barren, and might be much improved by a good system of agriculture.

Near the mission-house we find, firstly, a black mould a few inches thick, then pumice-gravel one foot thick, below this a yellow sandy loam about six feet thick, and afterwards another bed of gravel. This is the general composition of the land around the lake, and proves that the country was subject to successive volcanic eruptions. If this soil is properly under and over worked, it will become very fertile. Even without such careful and expensive treatment, everything appears to grow well in the missionary's garden. I was much pleased with the very healthy appearance of a great number of European fruit-trees.

It is right that I should make one observation about the climate in this interior district. It is

far more chilly than I ever experienced it on the coast: in the morning and evening the thermometer sank often to the freezing-point. Several kinds of acacias, from Van Diemen's Land or Australia, and also the ricinus-tree, had been frozen; and the missionary told me that it was scarcely possible to grow the acacias, although on the coast they are never attacked by frost, and are as vigorous as in their native land. Almost in the middle of the lake, but somewhat towards its eastern shore, is the island of Mokoia. It is about a mile long, and hilly, with a belt of low land around it. The hills rise to the height of about 300 feet above the lake, and are in many places covered with shrubs and small trees. From having formerly been the principal abode of the Rotu-rua natives, and their great stronghold against the Nga-pui and Waikato tribes, it was always well cultivated, and grasses, both native and European, plantain, chickweed, and others, which in such cases generally spring up, vary agreeably the usually brown tint of the lower native vegetation. Formerly the mission-station was on this island, and many of the shrubs which were planted in the garden of the station are still remaining. On the flat land are fields of sweet potatoes, for the growth of which the light soil is peculiarly adapted.

Here, again, the chief attraction is the thermal springs which issue close to the margin of the lake. The natives have banked them up from it by a surrounding wall of stones, but where the springs are

too warm they admit a sufficient quantity of cold water from the lake to bring them to a bathing temperature. Some of the springs have a slight taste of sulphuretted hydrogen, and others contain small iron pyrites; their temperature is from 100° to 120° Fahrenheit.

The lake of Rotu-rua, like that of Taupo, contains eels, and another species of fish of a small size; also a well-tasted crawfish, and a bivalve shell-fish called kakahi: all these serve to the natives as food.

The natives of Rotu-rua bear the general name of Nga-te-Wakaua; their number amounts to about 5000. They were once renowned for their bold resistance to invaders, and for their warlike habits; but E'Ongi, who dragged his canoes from the east coast into the lake, made a great slaughter amongst them. They had assembled, 3000 in number, on Mokoia island, but had only four muskets, and E'Ongi found no difficulty in mastering them, and carried off about sixty children, who, however, after being brought to the east coast, contrived to escape by feigning sleep, and returned again to their homes. E'Ongi also took all their canoes, and dragged them over the portages to the east coast, but lost them in a gale of wind.

The Rotu-rua natives had provoked this attack by an act of treachery on their part: thirty natives from the Bay of Islands paid a visit to the great pa on the island of Mokoia, trusting that some old

differences which formerly existed between the tribes of both places had been forgotten;—this, however, was not the case: it was secretly concerted by the Rotu-rua natives that they should feast their guests with all honour, and afterwards sing the war-song together; but that at the end of the song, which terminates with "Let us kill them, let us kill them," every Nga-pui should be sacrificed. This murderous plan was put into execution; two, however, of the intended victims escaped, and brought the news of this treacherous outrage to the Bay of Islands.

The natives of Rotu-rua were afterwards engaged in war with all the surrounding tribes, with the single exception of the Taupo natives. Their chief conflicts were with the Waikato, the natives at Mata-mata and Tauranga, on the east coast; and, indeed, the history of the Rotu-rua tribe for the last seven years is full of those incidents of robbing and war excursions, with occasional feats of cannibalism, which characterize the feuds so prevalent in this country. Although during the last two years there have been no actual disturbances, yet a durable peace is not yet made. The natives at Muketu, about twenty miles to the southward of Tauranga, belong to the same tribe with those of Rotu-rua, and are always their associates in their aggressions, especially in those against the natives at Tauranga. Muketu is the only place on the sea-coast which this tribe holds, and their great aim

in these hostilities has been to obtain possession of Tauranga, which is a better harbour than Muketu.

It is known that in many of the islands of the Great Southern Ocean the curious custom exists of changing arbitrarily words of the language, and of making others "tapu," or forbidden; nay, in the Sandwich Islands an attempt was made to introduce an entirely new language in place of the old one. I found the traces of a similar custom amongst the natives of Rotu-rua. Wai (water) has been changed into ngongi; kai (food) into tami, or kami. The name of a place near Tauranga, where a great fight took place, and many of the natives were killed and eaten, is Waikeriri, but they call it Ngongi-Keriri. The cause of this singular innovation is, that the old word becomes sacred, either from a chief adopting it for his name, or from some other event sanctifying it.

On questioning the natives, as I usually did, relative to the natural history of their country, I heard a curious tradition connected with a totara-tree in the neighbourhood. Near this tree, they said, their forefathers killed the last moa. From the few remains of the moa that have been found, it has been declared by Mr. Richard Owen to be a struthious bird, and of very large size.

I was assured by Mr. Chapman that there are some native rats still to be found in the district; but although I took the greatest trouble, I could not obtain one to determine the species.

The Rotu-rua lake discharges its waters, by a deep stream about a quarter of a mile long, into another lake, which, although called Rotu-iti (the small lake), appeared to me to be as large as Rotu-rua. It is of a very irregular shape, and surrounded by fern-covered hills. On a conical hill of basaltic lava which projects into the lake is a native pa, well fortified, but only scantily inhabited, probably from the natives at present living dispersed over the country, and only resorting to this stronghold in time of war. From the Rotu-iti it is a short portage into a river which leads to Muketu on the east coast.

It may not be inexpedient to recapitulate the chain of lakes which I have mentioned in the course of my journey, together with a few others which I had no opportunity of visiting, and which complete that remarkable series which runs with short interruptions from Tongariro to the eastern coast.

1. Taranaki. 2. Rotu-Aire. 3. Rotu-Ponamu. 4. Taupo. 5. Rotu-kaua. 6. Rotu-Mahana, connected with, 7. Tera-wera. 8, 9. Rotu-Makariti. 10. Rotu-Kakai. 11. Rotu-Kareka. 12. Rotu-Rua, connected with Rotu-iti. 15. Rotu-Ihu. 16. Rotu-ma. 17. Okataina. There is also a river flowing from the lake of Tera-wera, and discharging itself into the ocean at Wakatane; it serves the natives as a passage for their canoes.

CHAPTER XXVII.

Journey to Tauranga.

AFTER having availed ourselves of the kind hospitality of the missionary for several days, we crossed the lake on the morning of the 14th of June, for the purpose of continuing our journey to Tauranga, on the eastern coast. We induced four other natives to accompany us, in addition to the three who had come with us. These men engaged to accompany us to Auckland. One of them, who had been taken as a slave from Manukao, went with us chiefly for the purpose of applying to the *Protector of the Aborigines* appointed by Government, to obtain back some of the land which formerly belonged to his relatives. The poor fellow, who was a very well-informed man, and a clever mechanic, afterwards met with a refusal at Auckland. Many similar cases will doubtless be submitted to the consideration of the Land Commissioners, and I conceive that they ought to be decided, not according to English laws, but according to the equity of the case.

On the north-western banks of the lake I ob-

served similar alterations to those on the eastern; the lake had encroached upon the shore, and broken trunks of trees in their natural position were standing under water at some distance from the present margin. We passed a native settlement, Reka-Reka: the land around it consisted of low, fern-covered, and fertile hills; but the natives had their plantations about three miles from the lake, near the forest, where the land was still more fertile. Here we pitched our tent in the midst of the tribe. I observed that many of the natives were occupied in preparing a kind of food which I had not seen before: it consisted of the amylaceous seed-covers of the hinau (Elacocarpus hinau), which they powdered and made into cakes. It appeared to me to be rather insipid, although it is, I have no doubt, very nourishing.

The next day we entered the forest covering the hills which run along the eastern coast, and which separate the interior and comparatively open table-land from the sea. The forest was mostly tawai (Leiospermum racemosum), miro, and hinau; the Dracophyllum, which often grows to the size of a small tree, and the reddish leaves of which render it a very remarkable and beautiful shrub, was here and there to be met with. If the reader can imagine a pink that has become so gigantic as to have reached the size of the hazel-nut tree, he will have some idea of the appearance of this shrub. I also

observed several kinds of Aralia, a very curious form of plants. From the top of a very slender stem the long narrow leaves spread in a circle, hanging down in the shape of an umbrella.

The first part of the road was flat and very good, and had been cut by the natives for the convenience of the missionaries; but it soon became a narrow path, across which the luxuriant vegetation of creeping plants often produced a perfect net-work. The soil was pumiceous gravel, richly mixed with vegetable mould. Afterwards the land became more hilly, and its configuration and external outlines were often extremely picturesque: the tufaceous and pumiceous formation assumed castle-like forms, and the rivulets had cut out deep channels in the soft rock, leaving high banks. Notwithstanding the softness of the material, it must have required a great length of time to hollow out these rivulets, which I am inclined to ascribe entirely, or almost entirely, to the action of running water. Some spots were devoid of trees, and were covered with high fern (Pteris esculenta); they bore evident marks of having been cleared of the forest by fire. It is remarkable that this fern universally appears wherever a spot has been thus cleared, even in the middle of the primitive forest, where it never grows so long as the trees are standing. I have no doubt that the highly farinaceous root of this very common plant, which was formerly the principal food

of the natives, will one day be brought into use. At all events, it is an excellent food for pigs, which feed almost entirely upon it, and grow very fat.

On the 16th we still continued our route through the forest, and, from the quantity of creepers (Smilax), walking became very difficult. Towards noon, however, we emerged into open land. The forest terminated so abruptly, that there could be no doubt of its having been consumed by fire up to its present limit. If any other proof were wanted, the large and half-consumed stems of trees which lay at its verge were quite sufficient to convince the most sceptical. A splendid and most extensive prospect here burst upon our view: the range of hills which we had passed sloped gradually towards the east coast, spreading out into flat land near the seashore. Before us was the Bay of Plenty: to judge from its present appearance, it may well be said to have been prophetically so called by Captain Cook. To the northward the whole coast-line towards Witianga, or Mercury Bay, presented itself, at which place the coast-hills resumed bolder forms; the Mercury Islands also were visible: to the eastward was the island of Tuhua, or Mayor's Island, and several smaller rocky islets. More to the southward was Puhia-i-Wakati, or White Island, emitting from time to time volumes of white smoke; and to the southward our eyes followed part of the coast, which retained its smooth outlines.

Before we arrived at the perfectly even land

nearest the coast, we passed several swampy valleys of small extent, formed by the ramifications of the hills; and at last we followed the narrow crest of one of these ramifications down to the plain. The vegetation everywhere indicated the richest soil, and the most prominent plants were fern, flax, and veronica. Towards sunset, after a very fatiguing journey, we approached the homely-looking buildings of the Church mission-station, surrounded with gardens, and a planted shrubbery of acacias, ricinus, and peaches, which was almost the only vegetation in the shape of trees which we saw, as for several miles around the station there is no wood. Captain Symonds was welcomed to the house of the Rev. Mr. Brown, and I was kindly received into the family of Mr. Stack, a very active and unassuming missionary, to whom my best thanks are due for the hospitality I received at his hands for nearly a week.

I at first supposed that those singularly-formed mountain-ridges which are observed in Queen Charlotte's Sound, consisting of clay-slate and occasional dykes and interruptions of Lydian stone and basalts, might continue throughout the island, and thus diminish in a great measure the chances which a colony would have of success, as, from their steepness and from their everywhere forming narrow ravines, and small bays near the coast, they promise little reward to the labours of a European agriculturist; but, having passed from the western to

the eastern coast, and having thus seen a large part of the interior, I came to the conclusion that there is no regular system of a mountain-range running through the island. The hills which I passed from Rotu-rua to Tauranga are tufaceous; they are of moderate height and undulating, and, although their surface is wooded, the depth of the vegetable soil and the tufaceous substratum leaves no doubt in my mind that the whole coast district, down to and even beyond Hawke's Bay, will in future times form a very rich country; and that the natural outlet of its produce, from its easy communication with the valley of the Waiho, or Thames, will be the Gulf of Hauraki.

Tauranga has only been visited by small vessels of about two hundred tons. Although over the bar there are four fathoms water, the channel is very narrow, not being more than one hundred yards in breadth; and from its bending at a sharp angle, large craft would have great difficulty in entering it. Its southern headland is formed by a solitary conical hill, Maunga-nui, of about five hundred feet in height, which is connected by low land with the main. It consists of basaltic lava, large blocks of which lie on the sides and are strewed around its base. There are many traces of a former and very extensive native village on its sides; but in consequence of its being exposed to the attacks of a tribe of Rotu-rua natives, who live at Muketu, it has been deserted, and the natives

live at the other side of the harbour. Some time before my arrival eleven natives had been seized and slaughtered; and these mutual depredations have now been carried on for several years to such a degree that the natives of Tauranga were unable to plant sufficient ground to supply them with food, having been besieged and shut up in their fortified places: the fertile district in which they live has therefore been of no use to them. The northern head of Tauranga spreads out into low and level land; and some islands of considerable dimensions, and of the same structure and configuration as the mainland, are separated from it by broad channels of the sea. Although at present the principal anchorage for vessels is in the inner harbour, not far from the mission-station, I am inclined to think that the islands just mentioned might offer safe places for anchoring, even for larger vessels.

The remarkable phenomenon of these large portions of land being separated from the main shows that great changes have taken place in the geological condition of this coast, which has wasted away, and been separated either by the inroads of the sea or by volcanic agency. The coast at Tauranga and on those islands is from forty to eighty feet above the level of the sea, and in the cliffs thus formed we find that the geological formation is a yellow loam, surmounted in many places by beds of peat, containing a great quantity of undecayed wood, and averaging between four and

six feet in breadth: the upper layer is a yellowish earth, or decayed pumiceous matter. The lignite, occurring in large quantities, must be of great importance to Tauranga, as there is no other fuel for several miles around.

One of these islands is called Pane-pane, and stretches from Maunga-nui to the southward. It is about three miles broad and seven miles long. Another, running in the same line with the former, but nearer the coast, is called Matakanga. It is about the same size. A larger one in the same line is called Moa Opareoroi. The one nearest the coast, and of a square shape, is called Tangoia. Off Muketu is the island Motu-iti, of considerable extent, and said to have been purchased by the Americans. Off the entrance of the harbour of Tauranga is a small island, which I attempted to reach in a boat, but was obliged to put back on account of the heavy swell. It is situated about three miles from the southern headland, and consists, I am told, of basaltic lava. It is a mere rock, but possesses some interest as being the only spot, that I know of, in New Zealand where the new species of reptiles[1] exist which were brought over by me to England. The specimen from which Mr. Gray of the British Museum has furnished the description came from that island. It is an interesting question whether this island has been connected at any time with the mainland, and whether

[1] Hatteria punctata, Gray.

the causes which seem to have brought about the near extermination of that animal on the mainland have not been in action on a rocky island which is scarcely ever visited by the natives.

In the harbour of Tauranga the land loses continually by the encroachments of the sea. During a very heavy gale of wind last year the coast at Te Papa (the mission-station) lost ten feet. All along the east coast stems of trees are seen under water; this I state on the authority of Mr. Wilson, an intelligent missionary. Some of the rivers are nearly choked up by the quantity of wood carried down; this indeed is a circumstance of very frequent occurrence in New Zealand.

At a greater distance from Tauranga is the island of Tuhua, or Mayor's Island. It consists, according to the accounts I collected, of very rugged basaltic rocks and obsidian *in situ*, with narrow but fertile valleys. It is inhabited by a tribe of about two hundred natives, who cultivate the land, and occasionally provide passing whalers with provisions. They have been subject to many attacks from the tribes of the mainland, first from the Nga-pui in the Bay of Islands, and afterwards from the natives at Wakatane on the east coast. The latter attempted, about three years ago, to surprise them during the night, but were observed by the natives of Tuhua, who live in an almost unapproachable pa. They allowed them to come near, and then rolled large blocks of stone from the summit of the

hill into the fleet of canoes, which killed many of the aggressors, and the rest were forced to retreat. Since that time these islanders have been left undisturbed.

From several places near Tauranga, Puhia-i-Wakati, or White Island, is visible. It is a low island, still in volcanic activity, and produces a great quantity of sulphur. Already several cargoes of this mineral have been brought to Europe, where it has been sold for 8*l.* per ton. The sulphur is very pure, containing ninety per cent. The island is claimed by an Englishman, who lives opposite to it on the east coast, in Wakatane, and who is one of the oldest settlers in the country.

The natives at Tauranga belong to the large tribe of the Nga-te-awa, and live in three strongly fortified villages. Their number amounts to about three thousand. Most of them have been converted to Christianity by two missionaries of the Church of England and by two Roman Catholic priests. The missionaries of both persuasions reside here, and oppose each other as much as they can, and of course the native converts do the same. The number of converts to each creed is about equal, although the Roman Catholic mission was established much later than that of the Church of England.

Tauranga was in former times an important place for the pig and flax trade; and several European traders have lived there for many years. But from different causes the flax-trade has dwindled away

almost to nothing, chiefly in consequence of the facility of obtaining European articles at a cost less than that of dressing the flax. The trade in pigs is still carried on; and the traders obtain many pigs from the valley of the Thames, from Matamata.

Little of the land at Tauranga has been sold, with the exception of one piece to the Church missionaries, which is called Te Papa (the flat). The natives are not inclined to sell any land, and their number is sufficiently large to enable them to occupy and cultivate their beautiful district themselves, if a durable peace were established among the different tribes.

CHAPTER XXVIII.

Journey into the Valley of the Waiho, or Thames—Mata-mata.

On the 22nd of June we went in the boat of the missionaries up an arm of the harbour which runs to the northward, and then followed a path towards the coast-hills, as we intended to cross them into the valley of the Waiho, or river Thames. Ascending some low fern-hills, we arrived towards evening at the margin of the forest. The ascent was very gradual. We halted here at a small stream which falls into the sea to the northward of Tauranga. Continuing the following day through the forest, I found that these coast-hills were comparatively flat on the top, while on their western slope, where they bound the valley of the Waiho, they terminated abruptly, like an artificial embankment of the table-land of the Thames. Before we descended into the valley we followed for a while a rivulet about thirty yards in breadth, which takes its rise in the coast-hills, and then falls over their almost perpendicular western slope from a height of at least eight hundred feet, forming a magnificent cascade. In consequence of the thick wood

which at present surrounds the fall, only part of the sheet of water is visible at any one place. Making our way over rocks which lay in the bed of the river, we approached to the very crest of the fall, and looked down upon the descending waters.

The Maunga-Tautare bore S. 35° W. from this point.

We soon reached the banks of the Waiho, which flows at a distance of about two miles from the hills in a S.E. to N.W. course; and crossed it to its left shore, its depth being about six feet in the middle channel, and its current moderately rapid. Appearances indicated that the water was at its average height, and we had not had much rain during the last few days. Its width was about that of the Thames at Richmond, and on its banks strata of gravel were exposed more or less decayed, and either pumiceous or tufaceous. The point at which we crossed was about fifty miles from that at which the river falls into the Gulf of Hauraki. The vegetation consisted of fern, Dracæna australis, Leptospermum, with some rushes; here and there also a little grass. Although the soil was not alluvial, nor apparently very fertile, yet it seemed to be capable of considerable improvement by judicious cultivation. We halted here for the night, although fire-wood was rather scarce; the manuka shrubs, however, served us for fuel.

It rained all night, and our tent ran great risk of being blown down. The weather, however, cleared

up a little in the morning, and we started for Tapiri. The road was in a sad state, as the water had in many places become stagnant, owing to the almost complete flatness of the land and the absence of all drainage, and also in some places to the nature of the soil, which was clayey. Here again I had occasion to observe how injuriously the frequent fires of the natives had acted upon the quality of the land. Travelling nearly westward, we reached a forest of pines, chiefly kahikatea-trees and totara. There were cultivated grounds in the forest in places where the trees had lately been burnt; and many large but unfinished canoes, hewn out of huge stems of totara, proved the neighbourhood of a well-peopled native settlement. We were soon observed by some of the inhabitants, who, with a hearty welcome, accompanied us to their village, Tapiri. This forms the habitation of the Christian part of the tribe; the heathens live about a quarter of a mile farther off in a substantial antique pa called Mata-mata. In Tapiri the natives showed us with pride a fine church, which was eighty feet by forty, and which they had just finished. It was a most substantial building, and they had constructed it entirely by themselves. Internally it was supported by two well-finished columns: the lining was fern-stalks placed close together and intertwined with stripes of split wood.

In Mata-mata I saw the tomb of the principal chief, who died two years ago; it was a very exqui-

site piece of sculpture, and we all admired it greatly. Some of the houses also are finely carved. I understood that the heathen natives are inclined to become Piki-po, or Roman Catholics. In several cases some members of a family have become Protestants and the others Papists, merely, as it would seem, from a motive of opposition.

The natives at Mata-mata and Tapiri belong to the tribe Nga-te-hauwa, a subdivision of the large Waikato tribe, and amount to about 1500 people. They were constantly at war with the Nga-te-Wakaua at Muketu and Rotu-rua, and with the Nga-te-Paoa, at Puriri, in the Gulf of Hauraki. But last year they concluded a peace with the latter; in confirmation of which a feast was given, at which two hundred pigs were killed and eaten.

There was formerly a mission-station at Mata-mata, and the house, although half in ruins, is still standing; in the garden European fruit-trees, roses, asparagus, and other vegetables, have run wild, and the strawberry is spreading over the country. The station was deserted by the missionary in consequence of a misunderstanding between him and the natives. There is a European trader living at Mata-mata, whom the natives supply plentifully with pigs, which he sends to Tauranga.

At mata-Mata the soil is very fertile in consequence of the woods not having yet been destroyed. The plain is here well adapted for the cultivation of grain, and I was much pleased to see the natives

working together in a large piece of land containing about three acres, which they had fenced round, and in which they were about to sow wheat.

We started on the 26th in the direction of the Gulf of Hauraki, for the purpose of reaching the Piako river, which flows through the same valley, or, to speak more correctly, through the same low table-land, as the Waiho, or Thames. This table-land is between twenty and thirty miles broad, and is bounded to the eastward by the basaltic coast-hills already mentioned, which are called the Aroha (Love) Mountains, and do not exceed 1500 feet in height, and to the northward extend in an uninterrupted chain to Cape Colville. To the southward the valley continues to the neighbourhood of Roturua, and the coast-hills are there connected with the Horo-Horo Mountains, in which the river Thames has its source. Throughout their extent these mountains are abruptly separated from the plain, and, in fact, bound it like an artificial wall. To the westward the valley of the Thames, or rather that part of the interior table-land which we call by that name, is connected with the table-land or valley of the Waipa and Waikato, and is bounded by the basaltic coast-range near the western coast. There is, however, a separation caused by the Maunga-Tautari Hills. The lower part of the valley of the Thames is separated from the Waikato by hills which run toward the Gulf of Hauraki. Near the eastern slope of these hills flows the

river Piako; at the western slope of the eastern coast-hills flows the Waiho: both are in the same valley, and discharges themselves into the gulf close together. The length of this table-land is nearly one hundred miles.

The Waiho about forty miles from its embouchure is still a considerable stream, which would admit small steamers; the Piako is navigable for boats.

The mountains which bound this valley are generally wooded, especially those to the eastward, from which the Waiho receives several tributaries of sufficient size to be useful for floating timber down from the hills. The valley itself is free of wood, except near the banks of rivers, where the forest principally consists of the kahikatea-pine. We passed several large raupo (typha) swamps, and crossed a tributary of the Piako, which was swollen by the late rains.

The next day, in travelling down the valley, we passed many swamps, but a perfect drainage of them might be easily effected. The soil was better, and here and there it was covered with grass. Towards evening we reached the Piako river, which is about forty yards broad, and is deep and rapid.

On the 28th we followed the right bank of the Piako, and came towards noon to two houses which had been built by the natives for a European who had purchased a large district of land from them. The Piako here closely approached the western hills. A little lower down was a small settlement, from which

the natives soon brought a canoe, and conveyed us rapidly down the river, the banks of which were very beautiful. The river, being much swollen, reached at some points nearly to the foot of the banks, but in most places they appeared to be above the highest floods. They were slightly wooded, and patches of forest alternated with open spaces covered with a soft grass. Captain Symonds compared the scene to some of the Indian landscapes. The chief of the village received us with great civility, and soon provided us plenty of food, of which we stood much in need.

To the westward the Piako was here closely bounded by the hills, which consist mostly of an amygdaloidal basalt, having on their surface a white exhausted clay. Wood is only found in some small valleys and ravines. Amongst the trees are kauri-trees, but these are rather scarce. From the top of these hills an extensive view opens towards the western coast, the lower part of the river Waikato, and the Gulf of Hauraki, the different islands in which are easily discerned.

The Piako is a river of inconsiderable length, and comes from a hill in the neighbourhood of Maunga-Tautari, called Maunga-Kaua.

During our day's journey I observed a large block of a tufaceous rock about twenty feet in diameter, which was lying in the middle of the table-land: it afforded me another proof that the formation of the plain was connected with the primitive forma-

tion of the land, and that very little of it owes its origin to alluvium. Boisterous weather, heavy gales, and almost continual rain, which came in sudden squalls from the S.W., detained us in our tents during nearly a week. The Piako rose very high; even if the weather cleared up for a moment, we could not stir about, as we were surrounded by itsover flowed waters. At length, on the 5th of July, the weather became more settled, and our considerate friend the chief prepared his largest canoe to bring us down the river. Some European traders had formerly lived at this place, but they have now quitted it, as the natives prefer bringing their pigs themselves to Auckland, where they know they shall obtain the market-price. The little tribe inhabiting this village belongs to the Nga-te-Paoa; they generally live at Coromandel Harbour, but their farms, if they may be termed such, are up the Piako river. They have great quantities of pigs, which have run wild, but are easily caught by dogs. The common domestic fowl has also emancipated itself; but the cats, which, on becoming wild, have assumed the streaky grey colour of the original animal while in a state of nature, form a great obstacle to the propagation of any new kind of birds, and also tend to the destruction of many indigenous species. The causes which, in different countries, modify the animal world, form one of the most interesting subjects of study. What a chain of alterations, in the distribution and number of animated beings, takes

place from the introduction by man of a single animal into a country where it was before unknown! If a geological cause, such for instance as a diminution of the size of the island, attended by an alteration in the climate and a diminution of the means of subsistence, has contributed to the extinction of the struthious moa in New Zealand, and of the dodo in the Mauritius, it is no less sure that, since New Zealand began to be inhabited by its aboriginal race, the agency of man has effected a part of that eternal fluctuation in the organic world, the knowledge of which has been one of the most important results of modern science. The introduction of the dog, the cat, and the rat, the first of which, sometimes called pero (*Pero, Spanish*), was probably first brought here by the Spaniards, must have produced great changes, and undoubtedly diminished the number of some other classes of animals; they are perhaps the cause that the New Zealand quail (Coturnix Novæ Zelandiæ, Quoy et Gaim.) is so scarce in the northern island,—and also the guana. Similar changes have also been effected in the vegetable kingdom by the introduction of European plants and by the operations of man. The common dock (Rumex crispus) already covers large districts, in spite of all the efforts of the Europeans to eradicate it: how much the destruction of the forest by fire has favoured the spreading of certain species of indigenous plants I have already pointed out.

The shores of the Piako in this part of its course

were grown over with brushwood, and the lower we descended the more we found the land on both sides overflowed, so that we actually sailed over what is in summer a swamp of raupo and flax. The tops of both plants reached above the surface of the water. As the weather again became squally, our natives did not venture to leave the river, and we pitched our tents on some elevated ground, but were surrounded on all sides by the low swampy delta, intersected by deep arms of the river, in which the water was black. We started, however, early the next morning, with the ebb-tide, and in the afternoon reached in safety the mission-station at Puriri, on the right shore of the Waiho, and near its mouth. On the following day we started up the gulf, but could not reach Auckland, as a gale of wind compelled us to take refuge in Waiheke, the largest and most fertile island in the Gulf of Hauraki. It consists mostly of trap formation, and is for the greater part wooded.

CHAPTER XXIX.

Some Remarks on the Botany of New Zealand.

If we estimate the whole area of the three islands of New Zealand to be about 80,600 square miles, or 51,584,000 square acres, we shall be astonished to hear that the whole number of plants at present known, including the marine plants, does not amount to more than 632 species. This small number is not perhaps due to our little acquaintance with New Zealand and to the want of a sufficient botanical exploration of the country; for although there is no doubt that some more species will be added when we shall have examined the rugged and snowy mountain-crests of the middle island, yet it appears to me that their number will not materially alter the asserted fact, that, for the extent of its surface, and for the varied localities which it offers to the growth of plants,—as mountains reaching above the limits of lasting snow, stony and exposed ridges, burning and extinct volcanoes, valleys and ravines with a fertile soil (where moisture and moderate warmth, so favourable to vegetable life, continually prevail), volcanic table-land, swamps and morasses, downs on the sea-coast, &c.,—the flora of New Zealand is distinguished by a scantiness of species. In this latter respect the vegetable corresponds with the animal kingdom, which, however, is still more deficient. Several zealous botanists have bestowed their labour on the plants of this country. Captain Cook, in his first voyage, in the year 1769, was accompanied by Sir Joseph Banks and Dr. Solander, who landed at several points of the east coast of the northern island, in Queen Charlotte's

Sound and Dusky Bay. In 1772, during Captain Cook's second voyage, the two Forsters, father and son, aided by Dr. Sparmann, explored Queen Charlotte's Sound and Dusky Bay, and the result of their joint labours was Forster's 'Prodromus,' in which he described 174 species.

In 1791 Mr. Menzies accompanied Vancouver, and brought to England from Dusky Bay a large number of cryptogamic plants, which were described by Sir William Hooker.

It was only in the year 1822 that Captain D'Urville, and his naturalist, M. Lesson, continued the labours of these botanists; and the result of their researches and those of former botanists were embodied in a 'Flora of New Zealand,' by M. Achille Richard, who described 538 species, of which 380 were phanerogamous, and 158 cryptogamous plants.

The largest additions to our knowledge of the botany of New Zealand were, however, made by Allan Cunningham in 1826, and Richard Cunningham in 1833 and 1834, and were arranged by Allan Cunningham, and published by Sir William Hooker in his 'Botanical Magazine' and in 'The Annals of Natural History.' Since the too early death of the two brothers Cunningham, both of whom fell victims to their zeal for the science of botany, Sir William Hooker, that highly distinguished botanist and amiable man, is devoting much of his time to the botany of the islands in the Southern Pacific, and especially to the flora of New Zealand. We may expect to obtain soon from his pen a manual which shall comprise all that is at present known.

Although in its flora New Zealand has some relationship with the two large continents between which it is situated, America and Australia, and even possesses a number of species identical with those of Europe, without the latter being referable to an introduction by Europeans, yet *the greater number of species, and even genera, are peculiar to the country*, which astonishing fact had already forced itself upon the minds of the first explorers. New Zealand, with

some of the adjacent islands (the Chatham, Auckland, and Macquarie's), forms a botanical centre. It is sufficently distant from both continents to preserve its botanical peculiarities, and it offers in that respect the most striking instance of an acknowledged fact in all branches of natural history, viz. that the different regions of the globe are endowed with peculiar forms of animal and vegetable life.

The number of species at present known is 632, of which number 314 are dicotyledonous or endogenous plants, and the rest, or 318, monocotyledonous and cellular plants. To what can this remarkable disproportion be due—so contrary from what is the case in other countries? Is it owing to the geological fact that New Zealand is of recent formation, and that in such countries the plants which are regarded as inferior, the cellular and cryptogamous plants, make their appearance before the more developed flowering ones? Without discussing this difficult question, I merely observe that the visitor to the distant shores of New Zealand will be struck by the scantiness of annual and flowering plants, of which only a very few possess vivid colours, and would attract the attention of the florist. In their place he will find a number of trees and ferns of various descriptions, of which the greater part of the flora consists. But these give at once a *distinct character* to the vegetation. If the traveller should happen to come from New South Wales, he cannot but observe either that the glaucous colour of a New South Wales landscape, produced by the Eucalypti, Casuarineæ, Acaciæ, and Banksias of its open forests, which is only relieved in certain alluvial situations by a fresher green, and in certain seasons and localities by a variety of beautiful flowers, has given way in New Zealand to the glossy green of a dense and mixed forest, or that the landscape, when it is covered with the social fern, has assumed a brown hue. In the former general aspect, together with the tree-ferns, palms, and Dracænas which abound in New Zealand, that country resembles one situated between the tropics, and especially the beautiful islands of the Pacific.

Let us now take a rapid view of the genera and species of the islands.

There are 245 species of CELLULAR or FLOWERLESS plants. Of the tribe of the *Algæ*, or *seaweeds*, 48 *species* are known, several of which are true cosmopolites, as they occur in both hemispheres—on the coasts of New Zealand as well as on those of England. They belong, amongst the *Fucoideæ*, to the genera Sargassum, Turbinaria, Carpophyllum, Cystoseira, Castralia; amongst the *Laminarieæ*, to the genera Durvillea, Macrocystis, Laminaria,—several species of the latter are used by the natives to contain oil and other fluids; amongst the *Florideæ* are the genera Amansia, Rhodomenia, Thamnophora, Plocarnium, Rhodomela, Laurencia, Chondrus, Chelidium, Hypnea, Halymenia. I may observe here that pigs on the sea-shore feed extensively upon some of the seaweeds.

Of the *lichen tribe* as many as 28 species have been already described; and the volcanic nature of the country, in which large districts are covered with basaltic and scoriaceous rocks, and at the same time the moisture of the climate, are very favourable to the development of these forms of plants. Those described belong to the genera Parmelia, Cetraria, Sticta, Nephroma, Cenomyce, Stereocaulon, Alectoria, Cornicularia, Ramalina, Usnea, Collema, Cænogorium. A most beautiful and interesting kind is the Cenomyce retispora, which is found in the greatest abundance near the Bay of Islands. Some of the genera mentioned contain species which are extensively used in dyeing, and it is probable that such are also found in New Zealand.

The *fungi* are also represented by some species. Champignons are found everywhere in the island where horses have been introduced. Another fungus, a boletus, which grows on the weather side of the tawai-tree (Leiospermum racemosum), and to an enormous size, is used by the natives as an excellent tinder. To the fungi also belongs a very curious plant, parasitical on a caterpillar, viz. the Sphæria Robertii, called hotete by the natives.

In *mosses* and *livermosses* New Zealand is very rich. Most of them were collected by Menzies, many also by Cunningham and D'Urville. As Menzies collected all his specimens in the middle island, the mountainous and wooded character of which increases greatly the moisture of the climate, it is probable that many more genera and species will be discovered, as the interior of that island has scarcely ever been investigated by a botanist. The number of the species described is 72, belonging to the genera Sphagnum, Gymnostomum, Polytrichum, Dicranum, Trichostomum, Leucodon, Zygodon, Orthotrichum, Neckera, Bartramia, Codonoblepharum, Bryum, Leskea, Hypnum, Racopilum, Jungermannia (of which latter alone exist 27 species), Anthoceros, and Marchantia.

Of all plants, however, the *ferns* and *fern-like plants* are the most numerous in New Zealand, as they are not only the most common plants as regards the number of the genera and species, but especially as regards the number of individuals of one and the same species: covering immense districts, they replace the *Gramineæ* of other countries, and give a character to all the open land of hills and plains. Some of them grow to 30 feet and more in height; and the variety and elegance of their forms, from the most minute species to the giants of their kind, are astonishing. Although 94 species of ferns are already known, every day adds new treasures to our knowledge. There exist three tree-ferns, the Cyathea medullaris, dealbata, Dicksonia squarrosa. The Mahrattia elegans also assumes a tree-like appearance. The Cyathea dealbata is the highest; I measured some 40 feet in length. These trees generally grow in groups.

The genera of ferns which are found in New Zealand are—Amongst the *Lycopodiaceæ*, the genera Tmesipteris (1 sp.), Lycopodium (9); amongst the *Filices*,—Botrychium (1), Ophioglossum (2), Gleichenia (2), Todea (1), Ligodium (1), Schizæa (2), Grammites (2), Polypodium (4), Niphobolus (2), Lomaria (6), Allantodia (1), Asplenium (7), Cænopteris (1), Doodia (3), Pteris (9), Adiantum

(3), Cheilanthus (2), Lindsæa (3), Loxoma (1), Dicksonia (1), Aspidium (7), Nephrodium (2), Cyathea (2), Trichomanis (5), Hymenophyllum (13).

The number of MONOCOTYLEDONOUS or EXOGENOUS plants is very small in comparison with the cellular ones: there are 76 species. The grasses have given way to ferns. Near the coast I have never met with grass in any other way than in simple specimens. A little more I found in the fertile district of Kaitaia; and on the barren volcanic table-land in the interior a coarse wiry grass takes the place of the fern,—a species, however, which does not gratify the eye with its verdure, as it has always a dirty yellowish colour. The want of the bright green of the grasses near the coast gives an extraordinary effect to artificially planted grasses, which indeed contrast singularly with the brown tint of the fern. The number of *Gramineæ*, or *grasses*, which have been described is only 24, belonging to the genera Agrostis (9), Phalaris (1), Danthonia (1), Avena (1), Bromus (1), Schœnodorus (1), Triticum (2), Poa (3), Arundo (1), Paspalum (1), Rottbœllia (1), Spirifex (1), Torrena (1). It must, however, be observed, that some more exist, which have not yet been described.

If the useful *Gramineæ* exist in such a small proportion, the useless, or almost useless, *Cyperaceæ*, or *Sedge tribe*, are represented by an almost equal number—as many as 20 species. They are found especially on the sandy downs on the sea-shore, and in swampy and stagnant places. There are the following genera:—Cyperus (1), Fuirena (1), Trolepis (2), Scirpus (1), Vauthiera (1), Elæocharis (2), Schoenus (1), Lepidosperma (1), Lampocarya (3). Gahnia (1), Morelotia (1), Uncinia (1), Carex (4).

The nearly-related *Restiaceæ* and *Junceæ* have also several representatives—Leptocarpus simplex, Luzula picta, Juncus maritimus, effusus, filiformis. The latter species covers large districts, hills and plains together, with a stunted fern and a Lycopodium: it is a sure indication of little depth of soil, and of a subsoil through which the water cannot percolate. Another genus belonging to the same family is Astelia,

which is found everywhere near the banks of the rivers, in shady and moist or overflowed places, and is also frequently an epiphyte on trees.

The family of the *Palmæ* is represented in New Zealand by the Areca sapida. In the deepest recesses of the forest the traveller enjoys the sight of this graceful tree, which grows throughout the island, and often to the height of 40 feet, and a foot in diameter. It is a useful tree to the natives, who call it nikau, and use its large pinnate leaves for roofing their houses. The undeveloped plaited leaves, or the heart, are also eaten by them.

The nearly-related *Asphodeleæ* have more species, and, as tree-ferns and the Areca palm give a character to the gloomy forest, so several members of that family are characteristic for open alluvial ground, especially the genera Dracæna, Cordyline, and Phormium.

The Cordyline australis, or Dracæna australis, forms jungle on the alluvial banks of the rivers. The flax grows everywhere: a variety with yellow-striped leaves is scarce.

The plants belonging to the *Asphodeleæ* are Arthropodium cirrhatum, Dianella intermedia, Dracæna indivisa, Cordyline australis, stricta, another undescribed species, and Phormium tenax.

A climbing plant is very common in the New Zealand forest, which winds from tree to tree, and often renders the path scarcely passable. This is the supplejack of the Europeans, kareao of the natives. It is a useful plant for the latter, as it serves to support the thatch-work of the houses. The New Zealand pigeon feeds especially upon its red berries. It belongs to the *Smilaceæ*, and is the Ripogonum parviflorum of R. Brown.

Of the *Irideæ* of Jussieu, the genus Libertia has 3 species —grandiflora, ixioides, and micrantha.

The family of the *Orchideæ*, of which so many species exist on the American continent and in Australia, has also several on New Zealand. The *terrestrial Orchideæ* are Thelymitra Forsteri, Orthoceras strictum, Microtis Banksii, Acianthus rivularis, Pterostylis Banksii, Gastrodia sesa-

moides. As *epiphytæ* on trees grow Earina mucronata, Dendrobium Cunninghamii, and Bolbophyllum pygmæum.

Of the *Aroideæ* the natives cultivate the Caladium esculentum, which they call taro. According to their tales, it is not an indigenous plant, but their ancestors brought it with them at their first immigration.

The swamps of New Zealand are generally covered with the Typha angustifolia, which often also covers extensive districts of low ground, especially in the valley of the Thames. The same species is common to both hemispheres. Under the name of repo, or raupo, it is a most useful building-material to the natives, who form the walls and roofs of their houses with bundles of them, impenetrable to rain, which they tie together with the mangi-mangi, a climbing fern, the Lygodium articulatum of Achille Richard. The natives also eat the root of the repo, which is somewhat amylaceous.

Amongst the *climbing-plants* which seek the support of larger trees, the principal one is the Freycinetia Banksii, also a monocotyledonous plant, belonging to the family of the *Pandaneæ* of Robert Brown. It attaches itself principally to the kahikatea-pine. It flowers in September; and the natives are very partial to the sweet bracteæ of its blossoms.

The number of PHÆNOGAMOUS or ENDOGENOUS plants is 314.

The *Piperaceæ*.—Of these we have the Piper excelsum and the Peperomia Urvilleana. The former is the New Zealand representative of the Piper methisticum of the Sandwich and Tonga Islands: although bearing the same name—kawa—it is not used by the New Zealanders to make an intoxicating drink: its leaves, however, form a good and apparently healthy substitute for tea. It grows everywhere throughout the island.

Of *Coniferæ* and *Taxideæ* 8 species have been described, and they give the most valuable timber. I have already mentioned in the course of this volume the geographical limits of the only cone-bearing pine, the valuable kauri, or Dammara Australis, which is confined to the extreme north of

the northern island. To the south the totara and tanekaha prevail in many places, although it can scarcely be said that one species of pine ever forms a forest, as is the case on the old continent. The mai and the miro must be separated from the Taxideæ into a peculiar genus, as the fleshy part of their seeds does not surround the seed in the shape of a cup, as it does in the true Taxideæ, but they bear drupes. The kauri, the rimu, the kahikatea, and the totara attain the greatest size, and are the most common; the kawaka and miro are scarce, and form only small trees. The native and scientific names of the pines are —

Kauri . . .	Dammara Australis.
Tanekaha . .	Phyllocladus trichomanoides.
Miro . . .	Podocarpus ferruginea.
Totara . . .	Podocarpus totara.
Mai	Dacrydium mai.
Kawaka . . .	Dacrydium plumosum.
Kakikatea . .	Dacrydium excelsum.
Rimu . . .	Dacrydium cupressinum.

I must here observe that there exist three more species of pines, of which one is called hutu by the natives, and is a Phyllocladus; another is a dwarf Dacrydium, on the Tongariro volcano; and the third, which I found on Mount Egmont, is apparently a Podocarpus.

The family of the *Urticeæ* contains the genera Urtica (2 species), Elatostema (1), Hedycaria (2); and Cunningham also enumerates, from Banks's collection, the Broussonetia papyrifera, but which has not been seen again, and seems not to be an indigenous plant.

The following families contain the genera:—*Labiatæ* (gen. Micromeria), *Borragineæ* (gen. Anchusa and Myosotis), *Convolvulaceæ* (gen. Calystigia, Ipomea, Dychondra), *Gentianeæ* (gen. Gentiana, Sabæa), *Loganieæ* (gen. Geniostoma), *Apocyneæ* (Parsonia), *Oleineæ* (Olea), *Sapoteæ* (Achras), *Myrsineæ* (Myrsine).

Of the extensive American family *Epacrideæ* are four genera, of which especially Dracophyllum is very remark-

able. The genera are Cyathodes, Leucopogon (2 species), Pentachondra (1), Epacris (1), Dracophyllum (5).

Of *Ericeæ* we have the genus Gaultheria (3 species), also extensively spread in New South Wales.

Campanulaceæ—Wahlenbergia (1), Lobelia (5).

Stylideæ—(gen. Styllidium, Forstera).

Goodenoviæ—(gen. Goodenia, Scævola).

Of *Compositæ* are the following tribes and genera:—1. *Cichorææ* (gen. Scorzonera, Sonchus, Picris). 2. *Vernoniaceæ* (Shawia). 3. *Asteroideæ* (Solidago, Lagenophora, Aster, Haxtonia, Vittaclinia). 4. *Senecionideæ* (gen. Bidens, Cotula, Myriogyne, Soliva, Craspedia, Cassinia, Ozothamnus, Helichrysum, Gnaphalium, Arnica, Senecio, Brachyglottis).

Of *Rubiaceæ* exist the genera Opercularia, Galium, Coprosma, Ronabea, Nertepa, Geophila, Viscum, Loranthus.

Of *Coneæ*—gen. Alseuosmia.

The *Umbelliferæ* contain the genera Hydrocotyle, Petroselinum, Ligusticum, Peucedanum, Apium.

The *Araliaceæ*, spread especially in South America, are a remarkable family. They contain in New Zealand the genera Panax, Cussonia, Polyscias, and Aralia. The latter contains two species, the Aralia Scheffleri and crassifolia, whose peculiar forms never fail to strike the traveller, especially in the shady forests of the east coast.

Of *Oxalideæ*—gen. Oxalis (9 species).

Of *Geraniaceæ*—gen. Geranium (2), Pelargonium (1).

Of *Hypericineæ*—gen. Hypericum.

Of *Meliaceæ*—gen. Hartighsia (1).

Of *Sapindaceæ*—the Aledryon excelsum, the berries of which are used for making oil. Dodoneæ (1).

Of *Bombaceæ*, the Hoheria populnea.

Of *Tiliaceæ*—Entelia (1).

Of *Eleocarpeæ*—Eleocarpus (1), and Friesia (1).

Of *Sterculiaceæ*—gen. Plagianthus (3).

Of *Malvaceæ*—Hibiscus (1).

Of *Lineæ*—Linum (1).

Of *Caryophylleæ*—Arenaria (1), Stellaria (1).

Of *Elatineæ*—Elatine (1).

Of *Pittosporeæ*—Pittosporum (9).

Of *Droseraceæ*—Drosera (2).

Of *Violarieæ*—Erpetion (1).

Of *Flacourtianeæ*—Melicytus (2).

Of *Cruciferæ*—gen. Nasturtium (1), Cardamine (1), Alyssum (1), Lepidium (1).

Of *Magnoliaceæ*—Drymis (1).

Of *Ranunculaceæ*—Ranunculus (5), Clematis (3).

Of *Corynocarpeæ*—a genus related to the Myrsineis, Corynocarpus lævigata.

Of *Griselineæ*—Griselinea (1).

Of *Saxifrageæ* we have the Quintina serrata; 3 species of Weinmannia; gen. Aikama, and Leiospermum, of which the species racemosum is a good-sized tree, which forms extensive forests all over New Zealand.

Of *Crassulaceæ*—the gen. Tillaea.

Amongst the *Ficoideæ* there exists, besides one species of the genus Mesembryanthemum, the Tetragonia expansa, or New Zealand spinach, which, however, in the northern island is very rare.

Of *Passifloraceæ* exists the Passiflora tetrandra.

Of *Cucurbitaceæ*—the Sicyos Australis.

Of *Halorageæ*—the gen. Cercodia (3), Goniocorpus (3), Myriophyllum (1).

Of *Onagrarieæ*—the Fuchsia (2), and the Epilobium (18).

The family of the *Myrtaceæ*, although less numerous in genera, yet possesses some of a very extensive distribution, and others form some of the most beautiful and also most useful trees existing. The genera are Leptospermum (2), Metrosideros (9), Eugenia (1), Myrtus bullata,—the latter also common to Chilian forests.

Of *Rosaceæ*, the Acoena sanguisorba is common to New Zealand and Van Diemen's Land, besides three species of Rubus.

The extensive family of the *Leguminosæ* has three genera

which are quite peculiar to New Zealand; these are Edwardsia, Clianthus, and Carmichaelia.

The family of the *Rhamneæ* has the genera Cardopetus, Pennantia, Pomaderris, Corokia, Ixerba.

That of the *Coriarieæ*—the Coriaria sarmentosa, a very common shrub, the leaves of which contain an acrid poison, and often produce violent symptoms if eaten by cattle.

The family of the *Rutaceæ* has the genus Melicope (2 species).

Of *Euphorbiaceæ*, the Euphorbia glauca grows amongst the shingle of the sea-shore and on barren hills.

Of *Santalaceæ*, the genus Myda is represented by three species.

Amongst the *Thymelææ*, Jussieu, the genus Pimelea has six species, mostly shrubs.

Of the *Proteaceæ*, the Tora (Persoonia tora) and Rewa-rewa (Knightia excelsa) are the only known species. The latter yields a very beautiful wood, and with its dark-purple flowers would be a very ornamental tree. It is the New Zealand representative of the Banksias, of which such a variety of species are known in New South Wales.

To the *Laurineæ* belong two trees, which are very common in some parts of the island. The Laurus tarairi and calicaris are especially found to the northward, around Waimate and Kaitaia, where they form groves on the banks of rivers. The Laurus tawa covers the upper regions of dry hills in Cook's Straits, especially on the Tararua mountains at Port Nicholson, where it forms continuous forests.

Of the *Atherospermeæ*, the Laurelia Nov. Zeland. grows likewise in the northern island, forming a moderate tree.

Of the *Polygoneæ* we have the genera Polygonum (3) and Rumex (2).

Of the *Chenopodieæ*—the genera Chenopodium (1) and Salicornia (1).

Of *Amaranthaceæ*—the Alternanthia denticulata.

Of *Peronychicæ*—the Mniarum biflorum.

Of *Plantagineæ*—the Plantago major and varia.

Of *Primulaceæ*—the Anagallis arvensis and Samolus litoralis.

Of *Scrophularineæ*, the genus Veronica has as many as 9 species. Some of them, peculiar to New Zealand, form shrubs, and bear very beautiful flowers. To the same family also belong the Gratiola sexdentata and Euphrasia cuneata. Amongst the plants found by me on Mount Egmont is a new species of the genus Ourisia (fam. Scrophularineæ), not yet described (Sir William Hooker).

Of *Cyrtandraceæ*, is the Rhabdothamnus Solandri.

Of *Solaneæ*, the berries of the Solanum laciniatum are eaten by the natives, and its leaves used as cataplasms for ulcers. They also eat the leaves of another small species of the same genus.

Of *Myoporineæ*, the Avicennia tomentosa is the Mangrove of New Zealand, covering the shallow inlets in the northern part of the North Island.

Of *Verbenaceæ* (same order as the teak), the Vitex littoralis is the Puriri of the natives and the New Zealand oak of the colonists. Its quality of splitting renders it an excellent wood for firing.

END OF VOLUME I.

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